The Builder.

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The Institute and Architecture.

TWO letters under the above title, one in our last and one in the present number, represent we presume the opinions and position of those members within the ranks of the Institute who are more or less in sympathy with the group of architects now, for convenience of expression, usually referred to as "the memorialists," but who have not carried their opposition to the length of formal secession from Conduit-street. That they have not done so argues that at least they are in a more reasonable frame of mind than the outside opponents of the Institute, who seem to regard it as a mere camp of the Philistines, against which every righteous servant of architecture should shake off the dust of his feet; and it does seem to be possible to understand what Mr. Belcher and Mr. Brydon want, which is hardly the case in regard to the outside dissentients. Mr. Belcher moreover, does appear to recognise that the Institute has done something for architecture; that it has raised the character of the architect and surveyor, has encouraged students by offering prizes, and has founded a library of great value; the last not the least of its services, though one which most of its critics entirely ignore.

Both our correspondents affirm that the Institute has arrived at a "crisis" in its career, and a crisis which has been brought about by its own mistaken policy. In regard to one point, to be noticed just now, we are also of opinion that the Institute has landed itself in a difficulty arising out of its recent course; but as to the "crisis," it appears to us that the position is this—that a certain number of architects have taken up a rather one-sided and sentimental notion of architecture, and demanded that the Institute should accept their views, and as it officially declines to do so they cut the connexion and use many injurious terms about the Institute, and then tell that body it is all their own fault. Such a state of things may be a crisis in the history of a corporate body, but it may be a question which of the two parties is to blame for the "crisis."

Mr. Belcher goes into a definition of what architecture as an art includes, which is all true though not new, in which we do not believe anyone will differ from him materially, and which it seems in fact hardly necessary to repeat now. Architecture is the artistic treatment of a building not merely as regards exterior design and detail, but as regards the whole conception of a building in plan, section, and elevation. No one will differ from him here. The only criticism on the definition that we should venture to suggest is the negative one, that construction in a scientific sense seems to be passed over. The omission might not be noticed or regarded as intentional in Mr. Belcher's letter, were we not aware that eminent men among the memorialists, with whom Mr. Belcher is evidently much in sympathy, have openly declared that we have engineers to look after construction, and sanitary engineers to look after drainage, and that the architect in the true sense of the word has nothing to do with these matters. It seems almost incredible that any architect should deliberately lay down this position, but it certainly has been laid down in print in the most positive and unmistakeable language by one of the most eminent opponents of the Institute, and therefore we presume that the omission of any decisive reference to that part of architecture in Mr. Belcher's letter is not altogether unintentional.

Considering that architecture means building in the first place—building with other qualities superadded to it, but good building as the basis of the whole, this anti-scientific view of it is lamentably deficient. So far from exalting architecture, such a view of it appears to us to be depriving the art of a part of its dignity and completeness. Regarded merely as a matter of sentiment and fancy, architectural design cannot be considered (as some do vainly pretend) as an art on a level with sculpture and painting. In a certain sense it is a greater and grander art perhaps than either of those; but regarded merely as a means of artistic expression it cannot reasonably be put on a level with them. It is in its virile character, as a pursuit in which exact science is the basis of artistic expression, that a great part of the special dignity of architecture consists. To divorce the scientific element from it is to remove a portion of its special claim to respect. Architecture differs from all other forms of art just in this respect, that it is scientific construction carried out with a view to æsthetic expression. To regard the architect as merely concerned in designing, apart from construction and sanitation, is a position which, in its logical consequences, must lead in the end to make him an artistic inventor and draughtsman of forms instead of the master of the works. Mr. Brydon refers to the fact that the Institute has recently lost certain clever young men who will be the leaders in future days. We question whether any architect will ultimately be a leader who turns his back on the scientific side of his work. For a short time it may be so, but in the end the common-sense view of architecture as the art and science of building will prevail.

The establishment of the Institute examination as a test for young men entering its ranks is a practical recognition of this truth, and a recognition which public opinion seems to have called for. The objection made to it on the part of our correspondents and their allies outside the camp is that it includes to some extent an examination in architecture, that is, the production of work showing a certain standard of design and drawing. The critics of the examination system object to this on the ground that no one can be examined in art; which in a certain sense is perfectly true. But the objection, as far as our correspondents are concerned, is inconsistent with their own position in regard to the future election of Fellows.

The one difficulty, referred to just now, in which the Institute seems to be landed by its own action, is that while Associates are called upon to pass an examination test, candidates for the higher grade of Fellows can when of a certain age and standing, obtain entrance without this test. This is no doubt an anomaly, and it creates a difficulty which we have felt for some time past to be impending. The way out of it which is proposed by the supporters of the Institute

system is that Fellows (except under the powers of the Council to dispense with any such condition) should only be elected from the ranks of the Associates, which of course is practically making an examination test for Fellowship also; and we believe some members of the Institute contemplate even an examination test for Fellows apart from any such restriction. There is no doubt that this would be taking up a position which never has been taken up by any corporate society at all resembling the Institute of Architects. It would be an anomaly, and it is not very easy to see the way out of it. The proposition made by the first of our correspondents and supported by the second, and which we believe others are prepared to support, is that Fellowship should be conferred as a distinction, in consideration of the excellence of a man's work and the artistic power displayed in it. This is a proposition quite worth considering, but what we wish to point out in the first place is that it is open to just the same objection which the critics of the Institute make to the small amount of purely architectural examination which is included in the programme of the associateship examination. A candidate for Fellowship will in that case be elected or not in accordance with the opinion of the Council as to the merit of his executed works. A candidate for Associateship is at present passed or not passed partly in accordance with the opinion of the examining body on his designs of unexecuted work. Where is the difference in principle? If it is impossible in a strict sense to examine in art, equally it is impossible to form an infallible judgment as to the artistic merit of a man's design, executed or unexecuted. The only difference is that in the case of the Fellowship election as proposed, the selection is supposed to be made as an honour, in consideration of the exceptional merit of a man's work: in the case of the Associateship the candidate is refused if the work he sends up is below a certain standard. In one case, we may say, it is an appreciation of maximum excellence, in the other an appreciation of minimum excellence. But the principle and the process are the same in both cases. The result would arise from the judgment of certain persons appointed to judge, in regard to qualities about which there exists no infallible standard, and which cannot be reduced to any absolute test of right or wrong, correct or incorrect. The election of a Fellow as an honour might be conferred on some one whose works, in a very few years, might in the process of changes of taste be put on a much lower level; just as in the Royal Academy artists have been elected whose claims to such an honour were either not ratified by general artistic opinion at the moment, or were perceived some time afterwards to have been insufficient. To select a man for election as a Fellow on account of the artistic excellence of his work is only another way of "examining in architecture." It is sitting in judgment on his artistic quality, which is just what we are told we are not to do. We see no unanswerable objection to either proceeding, but objections which apply to the one apply with at all events nearly equal force to the other.

As to the question itself, of making election to Fellowship of the Institute a mark of honour in the same sense as the election to membership of the Royal Academy, the reasonableness of the principle depends mainly on the view taken of architecture. If it is regarded purely as an art, it is on the same footing as election to membership of the Royal Academy. If we regard architecture as a skilled profession with artistic expression as its crowning glory, the position is somewhat different. The adoption of the newly-propounded principle would entirely alter the character of the Institute, and put it on a different footing from any other professional representative body, as of course those who think that architecture is not a profession but an art would say it ought to be. If the adoption of this principle would in any way tend to heal the breach between the Institute and the eminent architects who are not and apparently will not be members of it, that would no doubt be an additional reason in its favour. But we regret to feel convinced that this would not be so, however willingly we would be convinced to the contrary. With some at least of the outsiders we fear the truth is that, for reasons it would be invidious to attempt to analyse, and which in fact we cannot exactly profess to understand, nothing that the Institute did would satisfy or please them. They cannot (or do not) even state clearly what they want, but what seems clear is that they do not wish for unity or to give up any of their own special fancies for the sake of harmony and mutual encouragement and help. If they would only do so, they might do a great deal of good, and supply the Institute with just some of those elements which are no doubt lacking in it; but we fear it is of no use to hope for this. There are no doubt faults, shortcomings and misapprehensions on both sides; we certainly do not think they are all on the side of the Institute of Architects, which appears to us to have the best of the matter, if not in genius, at least in logic and in reasonable and charitable feeling.

As to the general and much debated question whether architecture is a profession or an art, and consequently whether the representative body is to be regarded as a guild of artists or a society of professional experts, it may be said that while the "memorialists" have probably done good in raising the question and compelling us to look at all sides of it, the position which they take up in regard to architecture is one in which they seem to be entirely alone in the world. There appears to be, as far as we know, no such heresy (if it be so) among the architects of any other country. It certainly cannot be maintained that architecture is not an art in France; a distinguished art-critic has even suggested that it is more of a living art there than in any other country at present; yet the French architects, so far from desiring to escape from the practical, scientific, or even business side of architectural work, appear disposed to emphasise the practical side, and the necessary training for it, more than ever; and we imagine the position and motives of the seceders here would hardly be understood in that country. That may be an evidence of the inferior artistic feeling of the French; and in certain qualities of picturesqueness some of the best French architects admit (and we quite agree with them) a superiority in England which is perhaps mainly to be found in the works of some of the anti-Institute party. But we are inclined to think that the more comprehensive view of architecture in which the scientific and business elements are included as an integral part of the architects' programme is the view which will be permanently accepted by the modern world, and that it is better for architecture that it should be so. Such a view of the responsibilities of the architect and of the scope of architecture is more robust and masculine than that which sees in it only an occasion for the expression of sentiment in building, and regards the practical side of the architect's work as vulgar and uninteresting, a clog upon his soaring genius. That the full recognition of the practical side of architectural practice is not incompatible with the production of grand architectural conceptions, the name and works of the first "surveyor to the fabric" of St. Paul's are alone sufficient to attest.

PROGRESS OF WORK AT THE BLACKPOOL TOWER.—Messrs. Maxwell & Tuke, the architects of the Blackpool Tower, report satisfactory progress of the works. Messrs. Neill have now completed their contract for the foundations of the tower, and for the foundations of the brick keep surrounding the tower; and the contract for the superstructure has been let to Messrs. James Cardwell Brothers, of Blackpool, who will proceed at once with the work. Messrs. Heenan & Froude are proceeding with the preparation of the ironwork in the yard, and the actual erection of the tower pillars has been commenced. Two of the pillars, 55 ft. in height, are already in position.

LAND AS AN INVESTMENT.

A NOT unamusing correspondence has recently been progressing in the *Times* on the rival claims of land and works of art as investments. The correspondence was begun by Mr. Dowsett, a well-known surveyor and land agent, the editor of a work on "Land: its Attractions and its Riches,"* which pressure on our space has hitherto compelled us to leave unnoticed. This work is, in fact, a number of short, and, we must add, superficial essays, by the editor and fifty-seven assistants, who present every point which tells in favour of the investment of capital in land in a rose-coloured light, and touch very lightly, or not at all, on its various drawbacks. The subjects of the essays are so various as to make one think of Lord Bacon's saying that he took all knowledge for his province. Thus while Mr. Bear, not unknown as an agricultural writer, deals with "Tenant Right and the Prospects of Farming," the Rev. F. B. Meyer tells us of "Land in the Jewish Polity," and we even have essays on "Rabbits" and "Bees." But, strange to say, it seems to have been quite overlooked, even by the collective wisdom of Mr. Dowsett and his assistants, that the first necessity for the enjoyment of the country throughout the year is a well-planned and well-built house. To all intents and purposes the country house is passed over in silence, and Mr. Dowsett seems quite to have forgotten to get an architect or two to give some hints to the house owner. This is rather leaving Hamlet out of the play, for bees, rabbits, and cattle are of much less account than the health and comfort of the country resident and his household.

To revert, however, for the present to the recent correspondence, there seems to be an idea in the minds of some persons that rich men nowadays prefer to invest their wealth in works of art rather than in land. This assumption is quite opposed to the true facts. Millionaires and wealthy men of business buy land just as much as ever they did, but a much larger quantity of land is now in the market than used to be the case. Hence a surveyor, with needy clients at his back, complaining because he cannot obtain a purchaser for their property, no doubt feels aggrieved at the mass of money which has this season been invested in works of art at Christie's. But no one whose occupations give him an insight into the state of rural England can doubt for one moment that wealthy men are yearly investing their riches in land, and spending money on its development, and on the improvements of houses and farms.

But it is equally certain that smaller capitalists, who, ten or fifteen years ago, were willing to put money in land as an investment,—men such as lawyers in country towns,—now fight shy of land. Nor is this surprising, having regard not only to the small return which it brings in, but the annoyances and drawbacks which are now much more noticeable, and which, with the small return of profit, render it suitable only for men of large means. In saying this we do not include in the term "land" small residential properties in good situations; this is more strictly house property with some attractions, and must continue to have the same value, and be subject to the same possibilities of diminution in worth as heretofore. It is all very well, indeed, for Mr. Dowsett to set out tables of limited companies, the capital value of which has diminished so largely as to make this diminution measurable in millions, and to give instances, as of land in Queen Victoria-street, in the City, the purchase of which has made a man's fortune. He prudently omits to give us tables of commercial undertakings which have increased in value and of properties which have decreased in value all over the country. It would be in-

* "Land: its Attractions and its Riches." By Fifty-seven writers. Edited by C. F. Dowsett, F.S.I. London, 1892.

teresting if Mr. Dowsett had—to take one example only — given us the decrease in value during the last ten years of houses in South Kensington and landed properties in Essex and Bedfordshire. Were these facts before him, it may be doubted whether a prudent man would, without careful thought, take Mr. Dowsett's light-hearted advice to capitalists "to put some of their money into land." The fact is that, so far as house property and residential land is concerned, this species of property is much more mobile, if we may use the expression, than it was a few years ago. The ease of transit, the growth of towns, and numerous other circumstances, raise or lower the value of this kind of property much more rapidly than was formerly the case. Hence an apparently prudent investment may in a few years change in value in a manner which it was not possible to foresee. So far as the attractions of land are concerned they are really greater than they were, since the size of cities and the rapidity of modern life have made the quiet and health-giving properties of the country and its amusements more sought for. Where, for instance, shootings and fishings are within easy reach of London or large towns they have greatly increased in value, and the demand for hunting boxes in the grass countries has enabled many a landed proprietor with diminished rent to pay his way. There was not, indeed, the least need for Mr. Dowsett and his fifty-seven assistants to set out the attractions of the country in order "to win back capital to the soil." For they are thoroughly understood by thousands of men who have secured fortunes and by others who are on the way to do so. We are in the midst of a social change; the old order changes, giving place to new, but the change cannot take place in a day. Men cling tenaciously to estates which have been long in their family, and the supply of charming country estates thrown on the market is much greater than was formerly the case. Hence, in some instances estates are not sold which ought to be, and in others rich men pick and choose, so that some properties hang longer in the market than is agreeable to Mr. Dowsett and his professional brethren. In truth, there is accumulated wealth in the country sufficient for the purchase both of pictures and of land; a steady investment of cash in land is going on every year, and new men are becoming landowners. The great depression of English agriculture would have been much more keenly felt if this had not been the case. But certainly Mr. Dowsett and his team of fifty-seven writers are not likely to quicken the movement.

As we have referred to the absurd controversy (if it can be dignified by that name) which Mr. Dowsett started in the *Times* as to the relative advantages of purchasing pictures or estates, we may just add that Mr. Dowsett, judging from his letters, does not know what a picture means or what its object is. Mr. Rudyard Kipling amused himself, in a letter from Japan, with a half paradoxical suggestion that it was a better investment to travel and store up memories of real pictures in the brain than to buy "smears" on canvas; a humorous estimate of art which was probably never meant to be taken seriously. But it delights the mind of the estate agent, who comes forward with all gravity to urge that a real landscape, which is your own property, is much better than a few painted ones, and costs no more! Mr. Dowsett seems to think the object of landscape-painting is to give an illusory imitation of an estate. In that light it is certainly unsatisfactory; but we can assure him that it means a good deal more than that.

CHURCH BUILDINGS, WALTHAMSTOW. — At a meeting of the Building Committee and Trustees of the "United Methodist Free Churches," held at Walthamstow on the 3rd inst., it was decided to accept the plans and designs prepared by Mr. J. Williams Dunford, for the new church buildings proposed to be erected in Walthamstow. The total cost of the scheme will be about 4,000*l*. Mr. Dunford has been instructed to proceed with the work at once.

ARCHITECTURAL REMAINS AT OLYMPIA.

IT is now seventeen years since the publication of the first official record of the excavations at Olympia,—a record that appeared in the "Ausgrabungen." This monumental work was of the first importance as a detailed statement of precisely how and where the discoveries were made, and as a publication of some of the most surprising "finds," notably the sculpture. Necessarily a work published with surprising promptitude after the excavations could not contain either an adequate publication or anything like a full scientific discussion of the multifarious antiquities brought to light,—above all things it was impossible at once to make out the significance of the complex ground-plans of the various buildings and of the architectural *membra disjecta* piled everywhere in confusion. The time is now ripe for a work of very different character. Specialists have been at work for over fifteen years in every department of the Olympian antiquities, and the results of their investigations are to be embodied in a vast work, entitled "Olympia," of which the section on bronzes appeared a year ago, and of which the architectural section, the "Baudenkmäler" (Vol. I.) now lies before us.*

The first volume contains, as is natural, the more important buildings, those whose fame have reached the outside world,—*i.e.*, the Temple of Zeus, the Heraion, Metroon, the various "Treasure-houses," the Exedra of Herodes Atticus, the precinct wall and gates of the Altis, the Stadium, the Bouleuterion, Prytaneion, Leonidaion, and Theokoleon. Of each of these are given ground-plans; where sufficient remains are extant, sections and restorations; and everywhere exact reproductions of all important architectural features.

It would obviously be impossible to even summarise briefly a field so wide, and, indeed, much of the discussion is necessarily of so minute and detailed a character as to be intelligible only when closely following the plates. It will better serve, therefore, and show more clearly the scope and character of the work, to select one building, and that, perhaps, in some respects, the most interesting, and summarise the deductions made from a minute examination of its remains. We select the Heraion.

The Heraion was a temple to which Pausanias, attracted by its age and many peculiarities, paid special attention. He tells us (v. 16, i.) that the Skilluntiuns built the temple about eight years after Oxylus obtained dominion in Elis, hence, following Pausanias, we should have to date the temple about 1096 B.C.,—*i.e.*, the time usually given for the return of the Herakleidæ. To this it has always, from the outset, been objected that the existence of a peripteral temple with pronaos, cella, and opisthodomos was, in the eleventh century, B.C., an *a priori* improbability; further, that the masonry of that date was polygonal, and hence wholly different to that of the Heraion. Pausanias was, therefore, here, as so often elsewhere, quietly discredited. Pausanias nowadays is looking up as an authority. We are finding again and again that excavations confirm his statements, and that it is often our own inadequate knowledge of facts that constituted his apparent improbability. Such seems, according to Dr. Dörpfeld, to be the case as regards his statement about the Heraion. We know now that Tiryns and Mycenæ both had what is practically the plan of the *templum in antis*, only they used it as a megaron, with a portico; hence only the colonnade of the Heraion remains a feature to be accounted for. This *may* have been added to distinguish the house of the god from the house of the mortal. It was, in fact, like the superposition of a baldachino on columns over the ordinary megaron. The suggestion is, at least, an interesting one, and as we have no extant temple of heroic times, cannot at present be disproved. Among all primitive peoples the house of the god is made after the pattern of the house of the man, only with ampler decoration. Further, as regards technique, the masonry of the Heraion is closely paralleled by some of the masonry at Mycenæ.

Thus, so far, there is nothing to forbid the accuracy of the date given by Pausanias.

But there is another means independent of Pausanias by which the probable date of the temple may be fixed. Of the wooden columns originally set up on the Heraion some probably fell away in the seventh century B.C., some in the sixth, and one was still standing in the time of Pausanias, and served its original architectural purpose of supporting the opisthodomos. This column then had lasted eight centuries longer than the others; no doubt it was the last put in. Now, it is not easy to say precisely how long an oak column of one mètre in diameter would last in a particular climate, but this much is clear, the oak column that fell away in the seventh century B.C. (or even for certainty sake that which fell away in the sixth), must have been several centuries old, which would set the building of the temple back to the date which the statement of Pausanias requires.

This date is further borne out by the character of the votive terra-cottas found in the temple, and by the extant head of a huge cultus image. These, of course, cannot date the temple, but must rather be dated by it, but there is nothing in their style to make the date proposed impossible, or even difficult. On the other hand, the *architectural* terra-cottas are clearly of later date, and at first sight seem to contradict the theory, but there is nothing to prevent the supposition that they were added later. In fact, it is every way probable that the roof was originally flat, and that the gables, with their terra-cotta ornaments, were a decorative feature added later.

Another question is raised and answered. Dr. Adler thought that the cella, with its pronaos and opisthodomos, was earlier than the colonnade: there are, according to Dr. Dörpfeld, several objections to this. The foundations of the cella and its walls are built of just the same masonry as that of the foundations of the colonnade; the material ("Muschelkalk," containing particular shells) is the same, and is rarely found elsewhere. Further, the step which runs round the cella is not polished on its outer (perpendicular) side, which would have been the case had the naos stood free. Lastly, the inner and outer (colonnade) columns are so arranged as regards their axes that they must all have formed at least part of one original plan by one and the same architect. This identical axial arrangement does not occur in cases where the colonnade was added by a different hand.

Turning to the later history of the temple, it is evident that it was subjected to constant changes,—the wooden columns were one by one replaced, probably as early as the seventh century B.C., the flat roof of air-baked bricks was supplanted by a pedimental roof of terra-cotta tiles. After the building of the temple of Zeus the importance of the Heraion steadily declined. No further considerable alterations were made, as probably only important local ceremonies associated with cults carried on by women took place there. It has been conjectured that in the early period of the Heraion the temple was dedicated conjointly to Zeus and Hera, and that it was only after the building of the temple of Zeus that it became strictly a Heraion. The conjecture is an interesting one, but lacks evidence, and it would have first to be settled whether the conjunction of Achæan and Æolic tribes which brought about the marriage of Zeus and Hera had already taken place, but this is a question for mythologists rather than architects.

For the rest, in late Roman times, the roof was destroyed and the tiles crumbled down and made a mass of *débris*, which covered the

* Die Baudenkmäler von Olympia, bearbeiter von Friedrich Adler, Richard Borrmann, Wilhelm Dörpfeld, Friedrich Graeber, Paul Graef. Erste Hälfte. (Ein Band mit 72 Kupfersticken: gross Folio in Mappe, und ein Halbband Text 113 Secten.) 4°. Asher: Berlin.

whole building a mètre deep. It is to this we owe not only the preservation of many architectural fragments, but the admirable preservation of the Hermes of Praxiteles which was found embedded in the clay. The Byzantines built the temple up again roughly, and the old stylobate part of the walls and columns remained hidden and safe under the clay and their superimposed structure. They made use of the opisthodomos as a wine-cellar.

The site of the Heraion is a peculiar one; it stands, not as later Greek temples do, in a free and conspicuous open place, but wedged up against the hill Kronion. Part of its foundations had necessarily to be artificially made. This awkward situation must have been due to some original sacredness of the site, which probably held a very ancient shrine. In the south-west corner, as the excavations show, an ancient altar had originally stood.

Thus much of the Heraion,—of the remaining temples the conclusions drawn, though not always so novel, are not less interesting and important. The second volume of the "Baudenkmäler" will be eagerly looked for, and not less so the sculpture volume, which, as the sculptures are so largely architectural, is the necessary supplement.

NOTES.

THE Trades Union Congress now being held in Glasgow had some very knotty questions to consider, and as the views of the delegates upon some of these vary considerably, there is plenty of scope for interchange of ideas. These meetings are seldom characterised by any backwardness in the expressions of opinion, nor do the delegates always evince that tolerance towards those who hold different views which is necessary for the harmonious conduct of the debates. The chairman of the opening proceedings on Monday, Mr. J. Wilson, M.P., probably had this in view in urging the delegates not to come to the Congress "full of egotism and dogmatism"; while it was also significant that an enormous hand-bell had been provided for the chairman's use. Fortunately, however, there are those among the Union representatives who combine tact with firmness; men of clear heads and strong commonsense. The Congress this year numbers among its delegates the Parliamentary Secretary to the Board of Trade (Mr. Burt) and several other M.P.'s, and there is no doubt that the meeting at Glasgow will bring out the views of the leaders of the working classes on the great questions so closely affecting their interests. Besides what may be regarded as more purely "labour" questions, such as the eight hours' movement, several commercial subjects,—the decimal system, and other questions,—also find a place in the programme; and it is well that it should be brought home to the workers that such matters are of practical importance to them, in common with the rest of the community. The *Standard* would have been glad to see among the subjects put down for consideration the question of intimidation and violence employed by workmen against one another. Hardly a safe topic to introduce, perhaps, considering that intimidation is almost invariably employed by trades unionists. The *Times* admitted a most inflammatory letter to its columns a week or two ago, from a Derbyshire miner, the writer of which, alluding to certain political threats made use of during the recent contest at Newcastle, declared that if labour questions were obstructed in Parliament by Irish M.P.'s, the miners of this country would make it "as much as their lives were worth" to appear on an English platform. This is very deplorable, and affords a startling evidence of the illogical ground which men professing to be struggling for freedom are prepared to take up; while it also affords a very sufficient reason for the avoidance at the Congress of such subjects as that alluded to by the *Standard*. We take it that the admission of the letter in question into the columns of the *Times* was by way of a grim joke, though no doubt the joke was lost on the writer of the letter.

A REMARKABLE theory about the Pantheon has been set up by a brilliant young French "prix de Rome" architect, M. Chedanne, and supported by M. Eugène Guillaume in a recent number of the *Revue des Deux Mondes*, to the effect that the rotunda is later, not earlier, than the portico, and is the work of Hadrian. We may have more to say on the subject, as the theory is put forth with so much solemnity and parade of evidence by its French supporters that it seems to challenge examination; but our present impression is that the circumstantial evidence offered is quite insufficient to support a theory which in other respects is so architecturally improbable, and that M. Chedanne has in fact yielded to the temptation which so often besets young and clever archæologists in these days, of making a bid for reputation by propounding a new and startling theory in contradiction of the views of all previous students. The theory may not be ultimately tenable, but the propounding of it has the effect of drawing public attention to the propounder, and giving him a certain position which he might not have so quickly attained otherwise.

AS a general rule, nearly every Exhibition in the German-speaking countries has the prefix "International" to its name, no matter how diminutive may be the number of non-German exhibitors. The Munich Art Exhibitions have, however, generally had some right to the prefix, and this year the Bavarian capital can actually boast of having fully half the catalogue numbers attached to foreign names,—a combination of Prussia, Austria, and the minor German States being treated as the "home country." As far as architectural exhibits are concerned the Exhibition scarcely deserves attention, yet to show its international character, even in our neglected art, we may mention that Italy, Spain, Sweden, Holland, and the former Polish kingdom have contributed towards the dozen architectural drawings to be found in the non-German division of the show. To this dozen should be added another dozen by German authors, in which will be found such old friends as Bruno Schmitz's two designs for the national monument to the late Emperor William I., and Professor Raschdorff's design for the new Berlin cathedral, drawings which are somewhat damaged after the wear and tear of several exhibitions. Professor Durm, of Karlsruhe, it is true, has sent some neat drawings of a new palace for the Grand Duke of Hessen, and for some new public baths, and Professor Schachner (an Austrian) has contributed a sketch of St. Peter's in Rome, but what are these few sheets in comparison to the resources of the countries represented? When Munich itself cannot obtain contributions from half-a-dozen architects in the city it might be well in future to do away with the farce of calling it an "architectural group," and to call it an "Exhibition of Oil Paintings and Sculpture." Three second-class Gold Medals have been awarded, a number quite out of proportion to the quantity and quality of the architectural work shown. One of these medals went to Professor Raschdorff for his Cathedral design, the second to Professor Schachner's sketch, and a third to some photo-lithographs of the new theatre put up at Brussels according to M. Baes' plans. If there had been drawings instead of photographs of the Brussels theatre this award would at all events have been popular.

THE opening of the Metropolitan Railway last week to Aylesbury completes the extension of this line. This opening was celebrated at a public banquet at Aylesbury, but it is a little difficult at present to appreciate the great benefits which the working folk of Aylesbury expect to obtain from the new line. Already there are communications by means of the London and North-Western with all parts of England, and the journey to London is not appreciably shorter by the new line than by the old line. When the Manchester, Sheffield, and Lincolnshire have completed their extension, and begun to run over the Metropolitan line to London, Aylesbury is far too unimportant a town for fast trains to stop there. The fact is that the railway companies concentrate their best efforts upon the traffic between large centres of population, and this tendency must become more and more pronounced every day. A new line of railway necessarily adds to the convenience of persons who reside within a comparatively short distance from it. But it is perfectly evident, from the fact that this Metropolitan extension is ultimately to be a mere link in the system of the Sheffield Company, that Sir Edward Watkin has clearly perceived that the original scheme of an extension of the Metropolitan system only would not be a lucrative undertaking. Whether the still greater one upon which he has entered will, though larger, be proportionally a better paying line is exceedingly doubtful. It is certain to be made, but it will probably, like many of the great American railways, never pay its ordinary shareholders a farthing of dividend.

WE publish on another page a couple of sketches of the old buildings of Emanuel Hospital, the removal of which we fear must now be regarded as inevitable. In reference to the state of the building we may quote a portion of the letter written to the *Times* of Monday last by a correspondent who signed himself (prematurely it appears) "The Purchaser's Architect":—

"Each almshouse consists of an entrance lobby 3 ft. by 4 ft., opening into a room (living and sleeping room) about 16½ ft. by 12 ft. (average) and 10 ft. high, with a window 3 ft. 6 in. by 5 ft. front and back. Off this are two cupboards, and out of it a winding staircase leads to a cellar of same size,—6 ft. 6in. high,—lighted by a glazed door and two very small windows at rear. This cellar contains the sink and coal store. The walls are very wet, owing doubtless to there never having been a damp course, and, of course, the cellar is unfit to work in long. The floor is of cement. From this cellar access is given to the back garden, which is about 6 ft. below the level of the quad. There is no cistern or water-closet in the house. The sink is supplied with water direct from the main, but the supply is not continuous. The water-closet accommodation consists of one closet for each five houses. It is situated at the extreme corner of the site, so that the old tenants have a distance of from about 10 to 30 yards to walk to it through the rain or snow. As the tenants are very old, this distance, *plus* the winding staircase, is a difficulty. . . .

Of the twenty almshouses twelve are vacant. Separating the quad from the street is an iron screen or railing containing a large central pair of gates, and at the sides two wicker-gates. These gates are artistic in design, but their age is such that most of the hammered work is eaten through and is held up by straps. . . .

The dwellings lack the commonest of sanitary essentials. If remodelled their archæological interest is impaired if not destroyed. Such as they are they have always been, except perhaps that the w.c. was once a privy. The intrinsic value of the whole site is such that each tenement of one living room is worth about 2,000*l.*, which would build elsewhere probably fifteen similar but sanitary dwellings. The archæological interest is of great value, but is surely subordinate to the vital interests and primary objects of the charity."

This is surely the common sense of the matter. As we have already pointed out, the owners, in selling what they do not want are not destroying the building; the responsibility for this rests with the purchaser. If any one, or any corporate body, can afford to buy the building to preserve it, we presume they can still do so. In the meantime "The Purchaser's Architect" assures the public that if his scheme is carried out, no ground now open will be covered, though of course the proposed new buildings cannot be expected to be restricted to one storey. The amusing point in connexion with the matter is that another architect has written to the *Times* under his own

signature to say that he thought he was the purchaser's architect, and asking the anonymous architect for an explanation. It is to be hoped that the misunderstanding may be settled to the satisfaction of both parties.

VISITORS to Cologne will be pleased to see the improvements which have been made in the vicinity of the cathedral by pulling down blocks of disreputable old buildings, and giving the historical old "Domplatz" a larger superficial area, and a more uniform appearance. At the same time, however, there will be a disagreeable impression caused by seeing the cathedral flanked on either side by two specimens of modern architecture, *i.e.*, a large new hotel and a spacious railway station, both apparently near their completion. The station, which has just been roofed in, will be one of the most remarkable in Prussia, as far as construction is concerned. The central span of the three which cover the dozen pairs of rails measures no less than 63 mètres, the height being 24 mètres, and the length 255 mètres. The superficial area covered by this new station is 22,200 square mètres, or about double that of Cannon-street station.

THE inhabitants of the Faubourg St. Germain are just lamenting the loss of a square of green trees and grass, the last remnant of the once magnificent park of the Hôtel de Luynes (built by Pierre Lemuet for the Duchesse de Chevreuse), which has been destroyed by the prolongation of the Boulevard Raspail. This street when completed will form one of the longest and most important new avenues in Paris, about 2,300 mètres long, making direct connexion between the Gare de Sceaux and Boulevard St. Germain, not far from the Chamber of Deputies; but it has destroyed a good many old and interesting houses in its relentless march, including that in which the famous soirées of Mdme. Recamier were held for many years. On the other hand, the inhabitants of the right bank have just obtained a new square, near the Rue Monge, and on the site of the remains of the ancient "Arènes de Lutèce." M. Juste Lisch, who has directed the work since the death of M. Ruprich-Robert, has contrived to uncover and leave visible a portion of the ancient remains.

THE rapidity with which the buildings for the Chicago Exhibition are being erected is remarkable; but the rate of progress made there is entirely thrown into the shade by the haste with which the lofty buildings now so common in the large cities of the United States are being run up. The most recent example of this lightning rate of building is the Ashland block, a construction of steel, stone, and terra-cotta at the corner of Randolph and Clark streets, close to the City Hall, Chicago. This building, seventeen stories in height, was built in mid-winter. It covers an area of 140 ft. by 80 ft., its foundations being steel rails embedded in concrete, this method being adopted owing to the great superincumbent weight and the nature of the soil. The work of construction was continued day and night by relays of men, powerful arc lights being used at night. To enable the men to work in mid-winter, artificial heat was furnished by 100 Salamander stoves, and protection against the cold winds was provided by several hundred yards of thick canvas. About sixty iron and steel workers, 100 bricklayers and masons, and thirty-five terra-cotta setters were employed. The method of construction, in which large quantities of iron and steel are used, was first tried six years ago (and described in the *Builder* at the time), and nearly all the large buildings are now erected in that way, the only difference being that steel has taken the place of iron. The skeleton of steel for each floor is first erected, each column, girder, and rafter being lifted and placed in position by steam power, and rivetted with red-hot rivets. As the stories rise, they are filled in with brick, stone, or terra-cotta, the whole weight resting on the steel structure. In the case of the Ashland block at Chicago, six floors were completed by December 6, and the steel skeleton for the next six stories was for the most part placed. By December 19 ten floors were completed, and the steel shell for three more stories was mostly in position. Thus the entire construction of four floors of a building 140 ft. by 80 ft., divided into numerous rooms, was built in thirteen days, or one floor in three days and a quarter. The demand for these enormously high buildings in Chicago of course arises from the fact that the business quarter of the city is somewhat restricted in area and space has to be obtained vertically; the reason for the rapid running up is just the same as the reason for working night and day shifts on London business buildings — the desire to handle the rents as soon as possible. On the whole, we admire the American method best, because it accomplishes its object most thoroughly, and architecture (in the true sense of the word) counts for nothing in either case.

IN our last week's number we printed a description of the Mackenzie mausoleum in Greyfriars churchyard, Edinburgh, and of its restoration under Dr. Rowand Anderson's superintendence. That burial-ground, which Queen Mary opened to the citizens, lies north of Heriot's Hospital and the church of the Old and New Greyfriars. It has a steep incline northwards, and is traversed by the line of the second city wall, built after the battle of Flodden in 1513. The larger monuments are ranged against the backs of the houses—including Candlemaker-row and the Grassmarket—which abut against the north and east sides. The tomb of Sir George Mackenzie, who founded the Advocates' Library, Edinburgh, lies at the back of the church; whilst around are the flat stones on which the Covenant was signed, together with a memorial to those whom Mackenzie persecuted. A tradition obtains that Knox once took refuge in a tomb within the enclosure; probably when his life was threatened, after the death of the regent Earl of Moray. On August 10, 1889, we adverted in a "Note" to the crowded and unfinished state of the Advocates' Library, and to various efforts that have been made within the past fifty years to secure its completion.

THE intended purchase of the ancient Hôtel de Sens by the municipal authorities of Paris appears to have been put a stop to, at any rate for the present, by the extravagant demands of the present owner, who appears determined to get full value for archæological sentiment. He has already sold the carved woodwork, the chimney-pieces, and most of the interior fittings which gave the chief value to the building, to various collectors, and now asks a million francs for the nearly bare walls, a bargain from which the municipality has not unnaturally recoiled. It is a pity they put off the purchase so long, and did not endeavour to purchase the building before it was so much despoiled. We may draw attention to the fact, however, that the Paris municipality is willing to spend money in the purchase of ancient buildings, under reasonable conditions, for the purpose of preserving them. If they ruled in London they would probably purchase Emanuel Hospital with that object. But if the London County Council proposed such a thing, what objurgations we should hear from virtuous economists and indignant ratepayers!

A RATHER amusing intermittent correspondence on the subject of the telephone is to be found in the *Times* of the last fortnight. The Duke of Marlborough, who, a year ago, was the advocate of free trade in this industry, and contended strongly for the possibility of a 10*l.* rent instead of the 20*l.* now charged, wrote to the *Times* on the 23rd ult. a letter deprecating the wastefulness of competition, and even suggesting that a cheap telephonic service would not be an unmixed advantage since "the amount of unnecessary talking which would take place is somewhat inconceivable." This complete change of front has exposed him to attacks from both sides. On the one hand General Webber points out that nothing has occurred since last year, except the amalgamation of the New Telephone Company with the National, to justify the Duke's change of opinion. On the other hand, Mr. Faithfull Begg, who was his chief antagonist in the former controversy, ironically congratulates him on having, on further study of the telephone problem, come to see "that those into whose hands the management had at last fallen, and with whom he is now associated, knew what they were about." To General Webber the Duke makes no reply, perhaps because none was possible; but Mr. Begg's taunt evidently has gone home, and in Tuesday's *Times* it is indignantly repelled in a letter noteworthy at least for brilliance and originality of metaphor. The Lion,—The National Telephone Co.,—and the Lamb,—the New Telephone Co.,—lie down together it is true; but the Lamb is not inside, and the Lion was induced to come to the arrangement lest the Lamb should grow into "a dangerous rival Lion,"—here surely the metaphor is somewhat strained. The 10*l.* telephone was only a pistol held to the head of the old company by the new; at least this is the only obvious interpretation of the sentence. "Had we gone into rate-cutting as between the two companies it would probably have come to this. The 10*l.* rate is now postponed indefinitely in the interests of the company's dividends." The rest of the letter is taken up with explaining to the readers of the *Times* that, while a single-line system will serve for a small area, it is useless "to talk over the Government trunks on, except in inaudible whispers, mixed with bad language to the offending instrument," and that the lines of the National Telephone Company are mostly single overhead lines.

THE cholera scare seems to be of use to some people as an opportunity of advertising themselves. A sanitary engineer, for example, writes to a daily paper and, after repeating some of the best-known commonplaces of sanitation in a style of solemn warning, winds up with the remark that "as I am consulting engineer to the —— Board, and was a competitor for various other schemes of drainage, I of course know all about it," or words to that purport. It is in this sentence that the pith of such a letter lies, which the daily paper innocently prints (without charge) as a communication made in the public interest.

THE British Institute of Public Health (formerly the "Public Health Medical Society") is instituting examinations for the purpose of giving certificates of competency to sanitary inspectors. One of the conditions is that the candidate, before being received for exammination, shall produce evidence of having received practical instruction on the subjects of the examination; in other words he is not to use the examination as an opportunity for making a shot at a certificate by dint of good luck in making the best of desultory knowledge.

IN the *Revue Scientifique* for September 3 M. Zaborowski takes up a curious subject, "Les Chemins-de-Fer et l'Accroissement de la Taille," in which he asserts and supports by statistics the theory that there is a relation between the establishment of railways and the growth and development of the human figure, and that the tendency of the intrusion of a railway among a neglected and stunted population is to raise the standard of health and of stature all along the borders of the line. This, if true, is a curious and significant

comment on the hostile attitude assumed towards railways by Mr. Ruskin and other æsthetic philanthropists of the day.

MAGAZINES AND REVIEWS.

THE *Gazette des Beaux-Arts* starts with an article by M. Reinach on the Sarcophagi of Sidon, among which he singles out as of special interest that one called the "Sarcophagus of Alexander," including a supposed figure of Alexander, as, if not the purest in taste, the most vivid, lifelike, and energetic in design. Illustrations are given of part of this "painted bas-relief, or picture in relief," and of the head called Alexander, which is a remarkably fine and energetic head. M. A. Darcel contributes an article on "La Céramique Italienne," M. Paul Lefort discourses on some pictures by Vanloo, and M. A. de Champeaux has a long article on "L'Art Décoratif dans le Vieux Paris," a fertile and fascinating subject, in which however M. Daly has been the forerunner; and indeed the best illustration in the article, the beautiful south door of the Church of St. Nicolas des Champs, is reproduced from his "Motifs Historiques." A long article signed "C. E." is given to the Vienna Theatrical and Musical Exhibition.

The *Art Journal* commences with the second of the editor's "Rambles in the Isle of Wight," with an effective etching of the old church at Bonchurch by Mr. Percy Robertson, who also contributes the other sketches which accompany the article. Mr. Aymer Vallance contributes an illustrated article on the artistic treatment of knives, spoons, and forks, with illustrations from old examples, not all of which are to be commended, though old, because in some cases the treatment of the handle is such as to make it uncomfortable to hold, and no handle is rightly treated of which that can be said. Mr. Claude Phillips continues his notes on "Summer Exhibitions at Home and Abroad," and Mr. H. M. Cundall his articles on "Our Provincial Art Museums," dealing in this number with Sheffield and Wolverhampton.

The *Magazine of Art* gives a critical article, with some illustrations of his works, on the late Nicolò Barabino, a modern Italian painter who is not much known as yet in this country. He designed, among other things, the mosaics over the doors of the Florence Duomo. Mr. Tilly's article on "Burmese Art and Burmese Artists" takes us also on rather unfamiliar ground, and the illustrations of ornamental detail are curious and interesting. "Copyright in Works of Fine Art" is the subject of an article by Mr. G. E. Samuel, solicitor; we observe that the consideration of architectural design is entirely omitted; we do not believe much can be said about copyright in architecture, but we might have liked to have had the views of the legal mind in regard to it. The number contains a translation of Maurice de Guerin's "Centaur," with powerful and original illustrations by Mr. Arthur Lemon, who has devoted himself especially to centaurs, a sort of animal more satisfactory, to our thinking, in poetry and legend than in painting; when deliberately and realistically drawn they look too improbable.

The *Fortnightly Review* contains an article by Mr. Herbert P. Horne on "The Strand Improvements." Mr. Horne naturally devotes his attention principally to the architectural aspect of the proposed improvements, and he points out one defect in regard to the idea of making St. Mary-le-Strand the central feature seen down the new road from Holborn; viz., that the steeple of St. Mary is oblong and not square on plan, and that it would present its narrow side to the vista. This is a sound criticism, though we cannot agree with Mr. Horne in thinking that this shape on the plan is an architectural defect in itself; it appears to us, on the contrary, to add distinctive character to the steeple. Mr. Horne does full justice to the architectural importance of St. Mary's as the picturesque centre of the Strand vista, the feature which "lends distinction to the Strand, and adorns it as no other street in London is adorned." He suggests the southern end of the new street as a site for the County Council buildings, with the road diverging to fall into the Strand on either side of it. This is an idea worth consideration. Sir Robert Ball contributes an interesting article on Mars, in which he sums up dead against the idea of any possibility of communication signals, on various grounds for which we must refer the reader to the article, and is very sceptical as to the existence of inhabitants in the planet, on the ground that intelligent life is only possible or probable during a certain phase of a planet's existence, and that Mars being so much smaller a globe than ours, must have gone much more rapidly through its phases and is now in quite a different period of its history from the earth. An article on "Cholera and Cleanliness in Russia," by Mr. E. B. Lanin, should rather have been called "Cholera and Filthiness in Russia" (only the alliteration would then be lost), and gives fearful revelations. Mr. F. T. Piggott contributes an interesting article on "New Japan," rather political and social than artistic; and Lady Dilke contributes a short article on Mulready, with some pleasant reminiscences of the painter.

In the *Revue des Deux Mondes* M. Henry de Varigny writes a long article on the very modern subject of "La Pluie Artificielle," in a somewhat sceptical spirit, but concluding with a wish to see further experiments carried on in a more strictly scientific manner. M. P. Gault's article on "A Voyage to Kharezm" (one of a series of articles) contains much curious information on a region little known to European readers.

In the *Century* Mr. Van Brunt's articles on the architecture of the Chicago Exhibition are continued. Among the illustrations is a fine one of the "Golden Doorway" of the Transportation building, a very striking bit of architectural design for a temporary exhibition building. Another illustration shows a small and not very good view of the "Women's Building," the design of Miss Sophia Hayden, selected in a competition among lady architects. As far as one can judge from the illustration, it is a well-balanced and dignified design. A women's competition was also instituted for the sculpture of the main pediment, which was gained by Miss Alice Rideout. Mr. Theodore Robinson contributes an article on Claude Monet, the French impressionist landscape-painter, and Mr. Stillman continues his articles on "Italian Old Masters," dealing this month with Tintoretto.

Scribner's Magazine contains an article of considerable interest to architects on "The Tilden Trust Library." Apparently the position is that the late Mr. Tilden left a legacy to build a great library for New York, which owing to some legal informality in the bequest has been for the present shelved; and Mr. Bigelow, the author of the article, devotes himself to a consideration of how it may be best planned and placed if it is ever carried out. The article is illustrated by a plan and elevations and a perspective view of a proposed design by Mr. Ernest Flagg, architect, which has high merits as an architectural design. The plan is arranged in the form of a Latin cross of an extreme length of 715 ft., with a large central hall which forms the leading feature in the exterior architectural design. The style is a free and picturesque treatment of Classic features. "The Névsky Prospékt," by Miss Isabel F. Hapgood, is the sixth of the series of "great streets of the world," and deals with the banks of the Neva at St. Petersburg, and the aspect of the river itself when in winter it becomes a street. Mr. W. C. Bronnell contributes the first of a series of articles on "French Art," dealing with the "classic school" of the last and early part of the present century. The article evinces a broad and impartial critical spirit, and the writer urges the propriety of regarding this in many respects great phase of French art with sympathy, taking it from its own point of view, instead of contemning it because it is not in accord with the spirit of the present day; a caution much needed for modern art-criticism. "It is a sure mark of narrowness and defective powers of perception to fail to discover the point of view even of what one disesteems."

Harper's Magazine is unusually reticent this month on artistic subjects, the only article touching upon art being a short review (under the heading of "Editor's Study") of Mr. Montgomery Schuyler's "Studies in American Architecture," from which we gather that some thoughtful Americans (or one at all events) are beginning to be a little tired of the persistent effort of the modern American architect to be picturesque at any cost. "The attempt to Whitmanize architecture is not promising. The transference to the city streets of the bizarre constructions of seaside idlers gives our towns the aspect of a perpetual picnic encampment. The carpenter's architecture when he did not know anything was preferable to his architecture since he has learned to be fantastic. Better decent monotony in form and colour than a town which looks as if it were struck with the jimjams." We rather expected it would come to that before long.

The *Nineteenth Century* contains an interesting article on "Globe-Trotting in New Zealand," by the Countess of Galloway, giving a good description of the country, and Mr. Johns' article on "Protective Colours in Animals" is an excellent contribution to the literature of this curious subject, which has an artistic interest in its own way.

In the *Westminster Review*, Mr. Stodart Dewey has an article under the rather ambitious title "A New Phase of Art," the main subject of which is the genius and works of the Swiss painter Boecklin, the key to which is that Art shall now take to interpreting "the laughter of man as he thinks over again his old conceptions of Nature and of life," the treatment of old classic subjects in a buoyant and humorous manner. Whether this deserves to be catalogued as a new phase of art may be questioned, but the writer succeeds in making us interested in Boecklin's work and desirous to know more of it.

Blackwood contains an article on "The Cyclone of April 29 in Mauritius," a vivid description by an eye-witness (Mr. Jerningham, the Lieutenant-Governor of the island) of the phenomena and the results of the cyclone. Here is a portion of the description:—

"The intervals of quiet were filled in by a roar and seething noise, such as the sea alone produces when lashed to fury, and an ominous thud, but of scarcely perceptible sound, announced that a portion of the roof had been carried away. All efforts, then, were directed inside, and the lights were lighted, while the remaining hurricane shutters were being closed to the south and west. The clanking of doors that would not close or were burst open; the hissing of the tempest through every chink; the cracking of glass panes and crashing of glass upon the floor, and the sea of waters that flooded the rooms beneath the roof-shorn wing of the house; the still falling, falling barometer, and the booming of the blast against the building, as if enraged at its withstanding the pressure at all—constitute a recollection not to be forgotten by the two occupants of Le Réduit and their three servants on that day."

Mr. Holt S. Hallett, in the same magazine points out "the remedy for Lancashire," in the shape of a Burma-China railway, as a means of opening up a new market; an article which deserves serious attention. "A Reverie at Christie's," in *Longman's Magazine*, signed "A. L." (initials which one has no difficulty in recognising), is a moralisation on the interest and beauty of ancient bric-à-brac. "We can make telephones," says A. L., "we can get bad news more quickly, we can litter continents with jam pots and sardine tins, but we cannot create the beautiful, we cannot make life splendid and gracious." The mischief is perhaps that we do not try, or care to try, or there is no knowing what we might be able to do. A. L. quotes Lowell as to the ugliness of American coins; "I am too loyal," he adds, "to refer to our own remarkable medals; our chief business with them is to get plenty of them."

To the *Gentleman's Magazine* Mr. G. Cadell contributes an article on "Trees," popular rather than scientific; the article by Mr. C. Parkinson, "Engraven in the Stones,—a Record of Worcester Cathedral," is an interesting and new way of looking at a monument of ancient architecture, tracing the geological history of the various stones employed in the building. We may recommend it to the attention of our readers as a thoughtful and original article.

Among the articles on special cities which are now becoming a fashion in periodical literature, that on "Barcelona" in the *Cornhill Magazine* should not be passed over. It contains some picturesque architectural description.

Temple Bar devotes an article to "A Stroll through a Great Cruikshank Preserve," the collection of prints in the possession of Mr. Bruton, of Gloucester. The author admits that to the majority Cruikshank is a dead name, though maintaining that to the discerning view this is not and never can be the case. Perhaps not; but he will hardly persuade us but that Cruikshank, whether as artist or moralist, was much overrated by his generation.

The *English Illustrated Magazine* this month contains nothing of special interest to our readers except the agreeable little sketches of

Old Wrought-iron Baluster, Vézelay.

street architecture, by Mr. F. G. Kitton, which diversify the article on "Doncaster and the St. Leger."

The *Antiquary* mostly continues the serial articles, in progress in its pages, to which we have already called attention in referring to previous numbers.

WROUGHT-IRON BALUSTER, VÉZELAY.

THIS is a sketch of a stair baluster in one of the old houses in Vézelay, by M. Guillon, a French landscape-painter who takes also a great interest in architecture, and to whom our readers have before been indebted for sketches of old French work of various kinds.

THE NEW ROYAL PIER AT SOUTHAMPTON.*

Old Pier.—The Old Pier at Southampton was opened by her Majesty the Queen, when Princess Victoria, on July 8, 1833. Since that time the increasing trade and prosperity of the town have rendered it necessary to erect for pleasure traffic a new pier adjoining, reserving the old pier for commercial purposes; but during the progress of the works it became necessary to reconstruct the old pier, so that the whole is now an entirely new structure.

New Pier.—The New Pier just completed is the largest in the South of England, covering an area of 3½ acres. It provides landing-stages for ten steamers, so that ample provision is made for the ordinary passenger traffic to and from the Isle of Wight, and for the excursion traffic to and from Southsea, Bournemouth, Weymouth, and other places. The commercial traffic is also well provided for, so that goods, cattle, and sheep can be landed at all times of the tide.

General Description.—The pier is constructed upon cast-iron screw-piles, on which are bolted main and cross girders of rolled iron; the object being to obtain lightness, strength, and durability, and not to impede the water-way. The entrance buildings are of white brick and stone, affording accommodation for a large traffic of passengers and visitors. The entrance-gates for the horse and carriage traffic are on the east side, and the roadway is extended to the pontoon bridge. The cattle and sheep entrances are still further to the east, and are kept entirely distinct. Immediately inside the main entrance is a paved quadrangle 80 ft. by 50 ft. throughout, in the centre of which is an iron column carrying the electric light. Then follows the promenade or approach to the head of the pier, which is 780 ft. long and 20 ft. wide, having alcoves on the west side fitted with seats and plate-glass screens. At the south end of the promenade is the head of the pier, 250 ft. long by 265 ft. wide; in the centre is a large and lofty octagonal band-stand, 26 ft. diameter, enclosed by covered seats, the whole occupying an area of 5,800 square feet, and seating 264 persons. From each side of the pier-head branches out an arm, 185 ft. long with an average width of 33 feet, for enabling passengers to land from the steamers or to embark therein. Ordinarily passengers will land upon the deck level; but spacious landing places are provided at two lower levels for enabling them to land both at ordinary and at extra-ordinary low tides. On the west side of the pier is provided a commodious landing-place for passengers from yachts and from small boats, serviceable at all tides. The pier-head commands a full view of the Southampton Water; it is fitted with seats for upwards of 400 persons, and accommodates also a club house of the Royal Southampton Yacht Club. The commercial traffic is confined to the site of the old pier. Goods, cattle, and sheep will be landed at the pontoon, and will pass along the carriage road to the town; and sheep and cattle for embarkation will be penned in a special area provided for the purpose at the pier entrance. Through communication between Southampton and the Isle of Wight has been amply provided for by the South-Western Railway Company and the Isle of Wight Steam Packet Company, passengers being brought upon the pier by the railway without changing carriages; and spacious stations for arrival and departure have been erected on the pier. Electric lighting has been substituted for gas over the whole of the pier.

Timber Piles.—The old pier having been constructed entirely of timber, it became necessary to reinstate portions thereof from time to time; and with these repairs the pier has lasted sixty years, showing that timber is more lasting for such work than is sometimes imagined. It was not possible to identify with certainty the original timber, but some of the piles were remarkably sound in the portions below the mud-line.

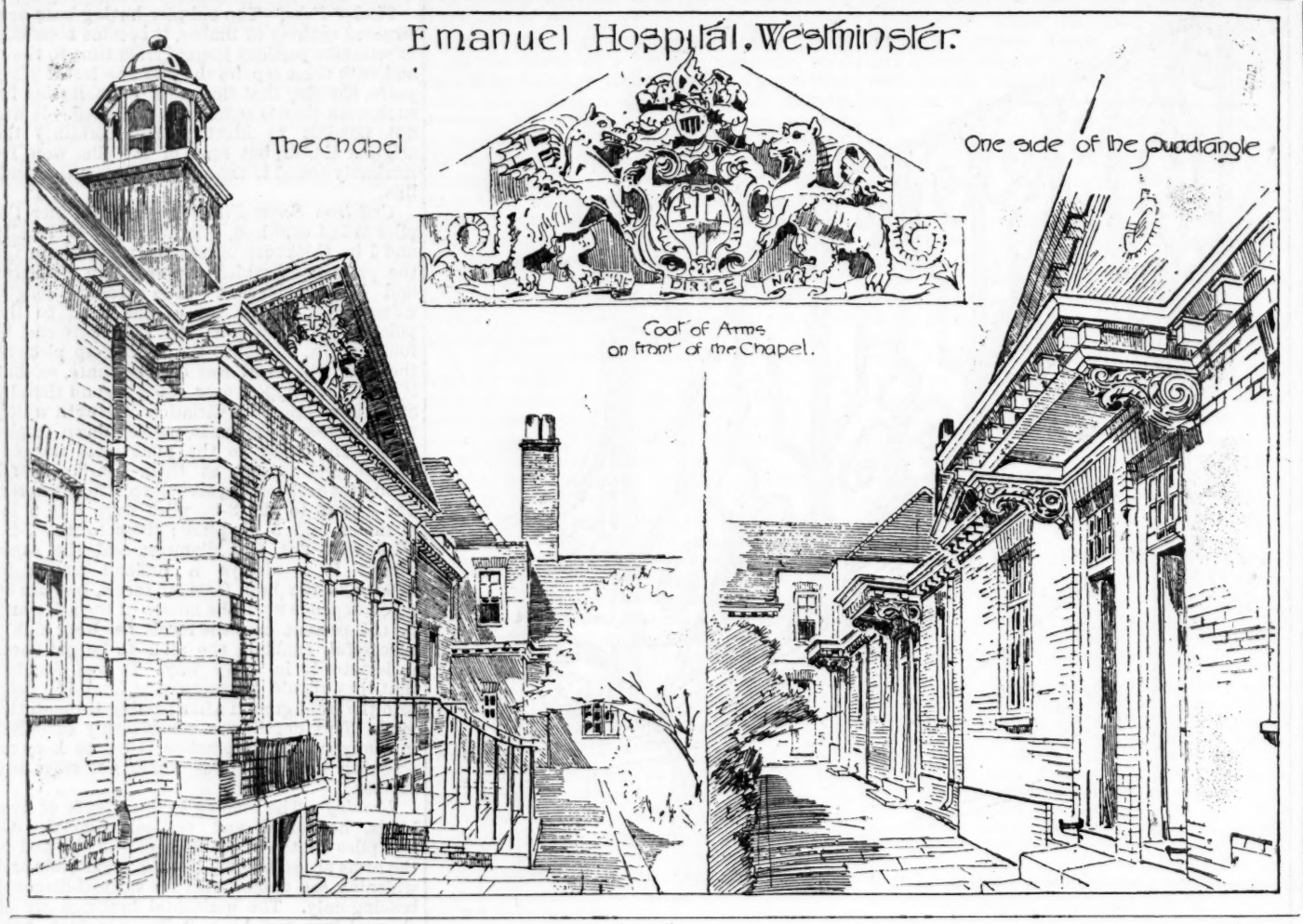
Cast-iron Screw-Piles.—In the new pier the piles are of cast-iron, 8 in. diameter externally and 1 in. thickness of metal, except those for the promenade, which are only 7 in. diameter and ¾ in. thickness. The average length measured from the top of the head to the point of the screw is 40 ft. They were cast in four lengths, including the making-up piece at the top. The head was cast separate, so that it could be slipped over the pile, and thereby assist in meeting the variation of length which must necessarily occur in putting down screw-piles. The joints to the piles were flanged, planed, and turned at their bearings, and secured at each joint by six bolts of 1 in. diameter. The screws to the 8-in. piles were 2 ft. 9 in. diameter and 5 in. pitch; those to the 7-in. piles were 2 ft. 6 in. diameter and the same pitch. It is always a difficult matter to determine the best form of screw, because so much depends upon the nature of the soil; and in the present case the result has been highly successful, enabling the piles to be got down satisfactorily in every way. It was decided that they should be screwed at least 5 ft. deep into the solid ground after passing through the mud. This depth was considerably exceeded in many cases, the practice being to keep on screwing until the piles would not move any further.

Bracing.—The bracing to the piles is of two kinds, horizontal and vertical-diagonal. All the piles in the main body of the pier and in the arms are so braced, but the promenade and widening are braced with the vertical-diagonal bracing only. The horizontal bracings are of channel iron weighing 9 lbs. per foot-run, placed about 1¼ in. apart, with seven cast-iron distance pieces fixed by ½-in. bolts; these bracings are secured to the piles by wrought-iron straps, 3 in. by ½ in., and bolted together by ¾-in. bolts. The horizontal bracings are stiffened by diagonal ties of channel iron of the same section, bolted to the web of the horizontal bracings. The total length of these horizontal bracings is four miles. The vertical bracing is of 1½-in. round iron: one end of each bar is forged flat, and bolted by 1¼-in. bolts to the wrought-iron straps round the pile heads, and to the horizontal channel iron that forms the horizontal bracing; the other end is a screw with two hexagon nuts, passed through a tension ring of cast steel 9 in. inside clear diameter. The total length of these vertical bracings is two miles and a half. They are applied only transversely, and there is no longitudinal bracing vertically.

Decking.—The main girders run longitudinally and form a continuous tie from end to end. They are supported on the pile heads by cast-iron chairs or stiffening pieces, and are bolted thereto by 1-in. bolts, the stiffening pieces being also bolted to the pile heads by four 1-in. bolts to each head. The span is 20 ft. from centre to centre of pile, this being considered the most economical. The main girders are of rolled I iron 18 in. deep by 7 in. wide, and weigh 83 lbs. to the foot-run. The outside girders are only 12 in. by 6 in., weighing 56 lbs. per foot-run; and those to the arms of the pier 12 in. by 5 in., weighing 42 lbs. per foot-run. The whole of the girders are level on the top flange, the difference of depth being made up by pile-caps cast specially. The floor girders run transversely, except for the last bay at the extreme end of the pier; their section is 9½ in. by 4½ in., weighing 29 lbs. to the foot-run. They are bolted to the main girders, being placed 5 ft. from centre to centre; this distance was adopted in consideration of the quantity required for covering such a large area as upwards of two acres. The total length of floor girders is 3½ miles.

Upon each of the cross girders a wood plate is bolted to the top flange, and a camber piece is fixed thereto rising to 6 in. in the centre on the head of the pier. The flooring is of pitch-pine 2½ in. in thickness, laid close with iron tongues at the head of the pier, and with open joints for the promenade and other portions. The moving load allowed for was 140 lbs. per

* A paper by Mr. James Lemon, M.Inst.C.E., Mayor of Southampton, read at Portsmouth at the recent Portsmouth meeting of the Institution of Mechanical Engineers.



square foot upon the main portion, and 112 lbs. upon the promenade.

Pier Arms.—In the construction of the arms of the pier the principle adopted is to use the cast-iron piles as supports for the decking and landings, and to place all the wood piles and bollards entirely independent of the iron structure, so that the concussion of the steamers is taken by these wood piles, and not by the iron structure. The wood piles are braced to one another both horizontally and vertically, at angles of about 45 deg. The ends of the pier arms are constructed of greenheart in lieu of iron, the better to receive the concussion of vessels. The timbers are also of greenheart or jarrah wood, with the exception of the fender piles, which are of Memel creosoted. The rubbing-pieces to the fender piles are of American elm, and the skidding-irons thereto are of convex bar rolled iron, 6 in. wide and ¾ in. thick.

Landings.—The landings are placed at two levels, to meet the variations of tide. They consist of cast-iron gratings 1½ in. thick, cast in sections 4 ft. 8 in. by 3 ft., and supported on rolled-iron girders. The total area is about 2,000 square feet to each arm, or 4,000 square feet to the two, so that ample space is provided for a large traffic.

Carriage Road.—The carriage road is constructed with Lindsay's steel-trough decking, weighing 16 lbs. per square foot, supported by steel girders 15¾ in. in depth by 6 in. in width, and weighing 62 lbs. per foot-run. Steel girders were adopted on account of the increased moving load here allowed, amounting to 2 cwts. per square foot. The span of the girders is 20 ft., and of the trough decking 14 ft. The decking is covered with a coating of tar and pitch on the upper side, and is painted underneath. The roadway is formed of gravel laid upon Portland cement concrete, with a fall from the centre to the sides to facilitate under drainage.

Weight and Cost.—The total weight of the ironwork, including both cast and wrought iron and steel, is about 1,600 tons. The total cost of the work will be about 40,000*l.* The new pier was opened on June 2 last by H.R.H. the Duke of Connaught.

The engineers of the work are the author of this paper and Mr. E. Cooper Poole; and the contractor is Mr. Henry I. Sanders. The electrical engineer is Mr. J. G. W. Aldridge, and the contractor Mr. F. Shalders.

EMANUEL HOSPITAL.

WE give these sketches as a record of this interesting old building, which will probably soon disappear. The original hospital was founded, according to Mr. Wheatley's Dictionary of London, in 1594, under the provisions of the will of Lady Dacre, the sister of Thomas Sackville, Earl of Dorset, the well-known Elizabethan poet, for the relief of aged paupers. The Hospital was rebuilt in the reign of Queen Anne. Some further remarks in regard to the present building will be found under the heading of "Notes."

Illustrations.

PAVILION, BARODA MUSEUM.

ONLY those architects who are fortunate, or unfortunate, enough to have practised in India fully realise the difficulties of building in that country. The workmen obtainable are, under proper guidance and supervision, capable of producing work in all respects equal to the best work produced in former times, but such work is much too costly to be lavished on mere works of utility, something cheaper is justly demanded, and something cheaper must be supplied. What is that something to be? Unfortunately, modern Indian works, in common with the political and economical institutions of the country, suffer from the indiscriminate, and frequently ignorant, criticism of travellers. It was easy to see that the style of art (save the mark) introduced by the British into India was bad; neither did it require profound wisdom to point out the beauties of native architecture, and to suggest a revival; but it did not seem to occur to these critics that men who designed objectionable masses in styles with which they were more or less acquainted would have much less chance of success in styles not yet subjected to critical analysis and study; and although a few commendable buildings designed by architects are dotted over the country, most of the revivals, especially those designed by natives, are infinitely worse in their way than their Palladian predecessors; the shortcomings of the latter were, indeed, less glaring, owing to the absence of any standard of comparison, but in the modern native work one has only to walk into the nearest Bazaar to find, in some old oil or glue shop, the original of the moulding so ruthlessly distorted. This is not the fault of the workman, who would much rather finish his work highly; the fault lies with the public, who ignorantly command these revivals.

The problem to be worked out in India is a counterpart of the problem being worked out in Europe, and may be divided into two parts, the builder's part, and the artist's part.

First, from the builder's point of view the parts of a building must be so arranged that the various rooms are well proportioned, conveniently situated, and well lighted and ventilated, and the materials must be used both scientifically and economically. Secondly, comes the artistic part, which consists of making the whole thing *look well*, by the adoption of some syetem of ornamentation which will be recognised by members of the profession as harmonious and legitimate. Although it is impossible to put this in words, every architect knows what it means.

The architect of the pavilion, of which we this week give an illustration, lays claim to no purity of style, but he claims that he has endeavoured to attack the problem, in this and other buildings designed by him, from the only standpoint which appears to him to render advance possible.

The building, which is about half finished, is being constructed at Baroda for his Highness the Gaekwar, and is intended to accommodate technical classes, a museum, and a library. Advantage will be taken of a large stock of broken Minton floor tiles to cover the surface with mosaic panels, after the manner of the Mooltan and Lahore work.

The drawing, which was recently exhibited in the Royal Academy, was executed by Mr. Chisholm.

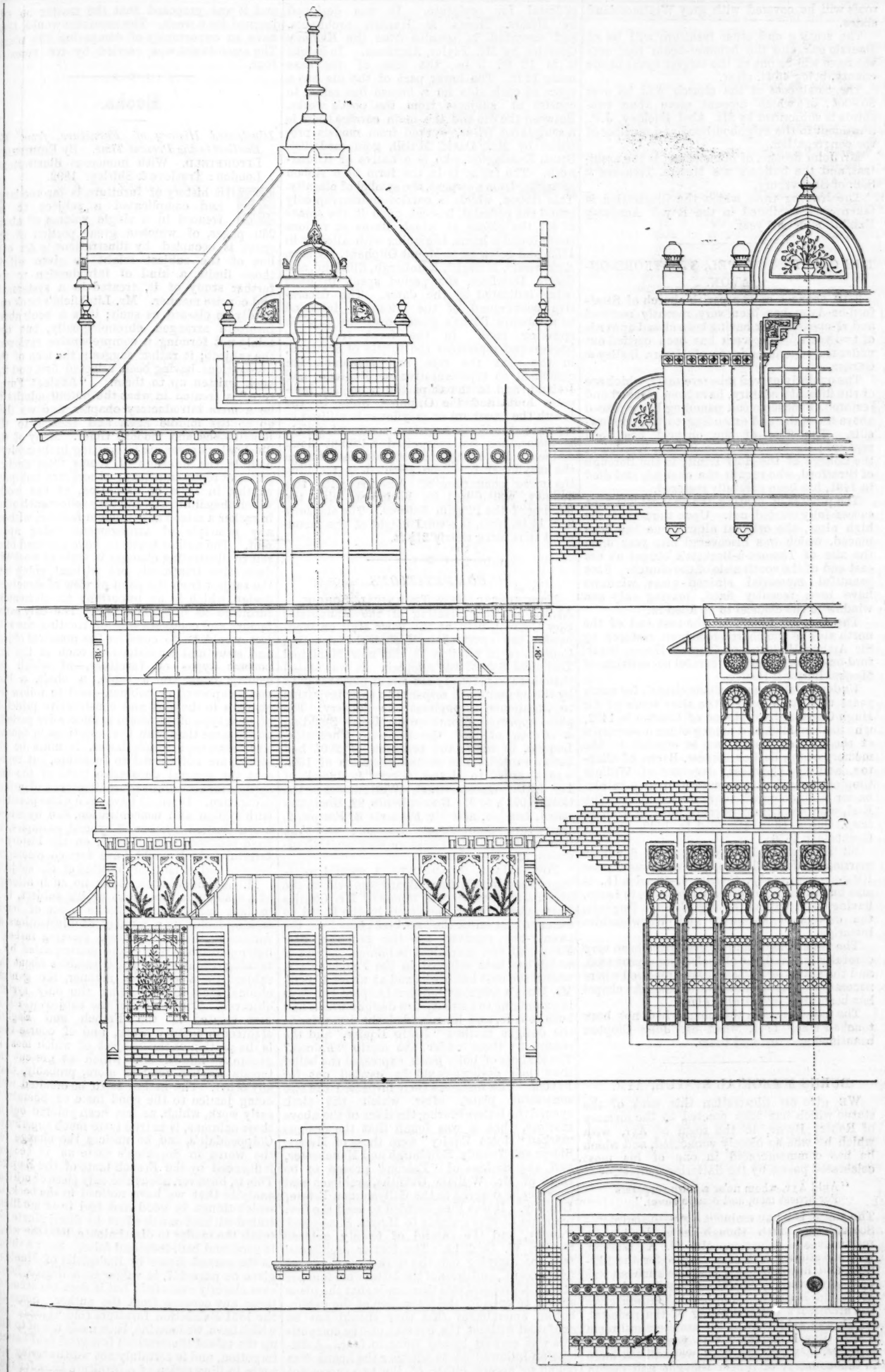
R. F. C.

CONGREGATIONAL CHURCH, ASHTON-UNDER-LYNE.

THIS building, which is now in course of erection, will provide accommodation for nearly 1,200 sittings.

The church and spire (185 ft. high), when completed, will form a very conspicuous feature in the district, especially as the site is on high ground.

The outside of the building is faced with dressed Darley Dale stone, and the interior is of red stone from the Carlisle quarries. The



Pavilion of Museum, Baroda. Part of Detail Elevation.—Mr. R. F. Chisholm, F.R.I.B.A., Architect.

roofs will be covered with grey Westmoreland slates.

The seating and other furniture will be of Dantzic oak, and the hammer-beam roof over the nave will be one of the largest spans in the county, being 45 ft. clear.

The total cost of the church will be over 30,000*l.*, of which amount more than two-thirds is subscribed by Mr. Abel Buckley, J.P., a resident in the neighbourhood and member of the congregation.

Mr. John Brooke, of Manchester, is the architect, and the builders are Messrs. Treasure & Son, of Shrewsbury.

The drawing from which the illustration is taken was exhibited in the Royal Academy Exhibition of this year.

THE CLOPTON CHAPEL, STRATFORD-ON-AVON.

THE chancel of the parish church of Stratford-on-Avon has been very recently restored and re-opened after having been closed upwards of two years. The work has been carried out under the superintendence of Messrs. Bodley & Garner.

The quaintly-carved miserere seats, which are of the fifteenth century, have been cleaned and restored, handsome oak panelling being placed above the stalls and extending to the window-sills. The floor of the chancel has been repaved; the tomb of Dean Balsall, Warden of the College of the Holy Trinity in the Borough of Stratford, who rebuilt the chancel, and died in 1491, has been carefully restored.

The process of heating the chancel has been successfully carried out. Upon the top of the high altar, the original altar stone has been placed, which was discovered last year upon the site of Thomas-à-Beckett's chapel at the east end of the south aisle of the church. Four beautiful memorial stained-glass windows have been recently fixed, leaving only one window in the chancel to be filled in.

The Clopton Chapel at the east end of the north aisle of the church has been restored by Sir Arthur Hodgson, of Clopton House, Stratford-on-Avon, under the careful supervision of Messrs. Butler & Heaton.

Under a Gothic arch in this chapel, for many years used as a pew, is the altar tomb of Sir Hugh Clopton, Lord Mayor of London in 1492, who died in 1496, and among other monuments of the Clopton family one is erected to the memory of the Earl of Totness, Baron of Clopton, and his Countess, daughter of William Clopton, two life-size recumbent figures in alabaster and coloured to represent life. The Earl, who was Commander-in-Chief in Ireland *temp.* Queen Elizabeth, died in 1629, and his Countess in 1636.

Sir Edward Walker, whose only daughter married Sir John Clopton, and who was Garter King-at-Arms, *temp.* Charles I.–Charles II., is also buried in this chapel, his epitaph, in Latin, having been written by Sir William Dugdale, the celebrated antiquary and Warwickshire historian.

The monuments and figures have been very carefully restored, the old colouring reproduced, and the alabaster and stonework renewed where necessary. The window overlooking the chapel has been filled with tinted glass.

The monuments in this chapel had not been touched since 1714, when Sir John Clopton beautified and restored them.

BURNS MEMORIAL STATUE, AYR.

WE give an illustration this week of the statue which has been erected to the memory of Robert Burns, in the town of Ayr, with which he was so closely connected, and which he has commemorated in one of his most celebrated poems by the flattering couplet,—

> "Auld Ayr, whom ne'er a town surpasses
> For honest men, and bonnie lasses."

The statue is by an eminent Scottish sculptor—Scottish by birth though now English by residence and adoption—Mr. G. A. Lawson, who has studied various portraits for the likeness, and has adopted a costume such as was probably worn by Scotchmen of Burns's rank of life in his day. Another lithograph gives the architect's detail drawing of the pedestal, which was exhibited at the architectural room of the Royal Academy this year, and is an instance, of which we hope we shall see more in this country, of proper thought and design being bestowed on the treatment of a pedestal for sculpture. It was designed by Messrs. Morris & Hunter, architects, and executed in granite from the Kemnay Quarries by Mr. Taylor, Aberdeen. In height it is 12 ft. 3 in., the size of the base being 12 ft. The lower part of the die has a space on each side for a bronze bas relief, to consist of subjects from the poet's works. Between the die and the main cornice there is a sculptured frieze, worked from models prepared by Mr. David M'Gill, gold medallist, South Kensington, who is a native of Kilmarnock. The frieze is in the form of a ribbon springing from a serpent, the symbol of eternity. This ribbon, which is carried uninterruptedly round the pedestal, has cut upon it the names of all the places at which Burns at various times found a home, beginning with Alloway in 1759, and going on to Mount Oliphant, Lochlee, Kirkoswald, Mossgiel, Edinburgh, Ellisland, and finally Dumfries, the period spent in each being indicated by the dates. The decorative background of the frieze is intended to symbolise Burns's power over the English speaking race. In the front frieze the background represents the thistle of Scotland, in the next the rose and shamrock are combined as representative of England and Ireland, and in the third the palm leaf indicates India and the Colonies, while in the fourth the hawthorn or mayflower is utilised to represent the North American continent, which, it seems, has no recognised national floral emblem. In the absence of this desideratum the mayflower has been selected as recalling the close connexion of America with this country, which had its beginning with the landing of the Pilgrim Fathers. The statue is 9 ft. 1½ in. high, the total height of the monument thus being nearly 21½ ft.

COMPETITIONS.

MANCHESTER NEW TECHNICAL SCHOOL.—At the monthly meeting of the Manchester City Council, held at the Town Hall on Wednesday, the report of the Technical Instruction Committee in relation to the new Municipal Technical School was adopted. It was stated that there were twenty-six sets of plans received by the committee in response to their invitation to architects throughout the country. The plans approved were those of Messrs. Spalding & Cross, of 15, Queen-street, Cheapside, London, to whom the premium of 200*l.* had been awarded. The second premium of 150*l.* was awarded to Messrs. Gibson & Russell, of 11, Little Queen-street, Westminster; the third (100*l.*), to Mr. Ernest Runtz, 22, Moorgate-street, London, and Mr. Frederic R. Farrow, 2, New-court, Carey-street, London; and the fourth (75*l.*) to Mr. Theodore Sington, Oxford-street, Manchester.

TOWN HALL, LLANELLY.—A special meeting of the Llanelly Local Board was held on the 31st ult. to consider the report of Mr. Charles Barry, the assessor appointed by the Board to examine and select the two best plans from the twenty-five received for the proposed new Town-hall and municipal buildings, the site of which has been selected in the People's Park, whilst the cost has been fixed at about 10,000*l.* Mr. Barry's report stated that he spent two days in examining the twenty-five designs which had been sent in, and he awarded the first prize to the designs marked "Motto Equity," and the second to those under the motto "Falcon." The authors of both plans expressed the belief that their designs could be carried out for 10,000*l.* The members then inspected the two successful plans, after which the clerk opened the letters bearing the titles of the above mottoes, when it was found that the designs marked "Motto Equity" were those of Messrs. Simon and Tweedy, Edinburgh and Manchester, and the designs of "Falcon" proved to be those of Mr. William Griffiths, architect and surveyor, and agent to the Gellywernen Estate, Llanelly. It was then decided to send the first premium of fifty guineas to Messrs. Simon and Tweedy, and the second of twenty guineas to Mr. W. Griffiths. The former architects' fees for carrying out the work were the usual five per cent., and those of the latter were four per cent. A proposal was then made that the plans should be open for the inspection of the public, but an amendment that they should not be exhibited without the consent of the competitors was carried by ten votes to four. A discussion followed as to whether the board was bound to accept either of the two successful plans, but the opinion of the members varied, and it was proposed that the matter be adjourned for a week. The members would thus have an opportunity of comparing the plans. The amendment was carried by ten votes to four.

Books.

Illustrated History of Furniture, from the Earliest to the Present Time. By FREDERICK LITCHFIELD. With numerous illustrations. London: Truslove & Shirley. 1892.

THE history of furniture is far too large and complicated a subject to be treated in a single volume of about 250 pages, of which a great portion of the space is occupied by illustrations. An outline of the subject might be given within those limits, a kind of introduction to the further study of it, treated in a systematic and concise manner. Mr. Litchfield's book can hardly be classed as such; it is a book about furniture arranged chronologically, but certainly not forming a comprehensive review of the subject; it rather suggests the idea of the illustrations having been selected first and the book written up to them. "Ancient Furniture" is treated in what the author admits to be a mere introductory chapter, and we then go to the middle ages, and thence to the Renaissance and modern times. Many of the illustrations given are interesting in themselves, notably the interiors of rooms from ancient pictorial representations; others are not quite worthy, in style of execution, of the works which they illustrate, and they follow each other in rather a mixed and random fashion, without any principle of arrangement being apparent. The author seems to have confined himself to illustrating changes in style of work and decorative treatment, but without going into the subject from the point of view of structural design, which is as important an element in furniture as in architecture. The only satisfactory and complete way of treating the subject would be to consider the practical object and structural conditions of each of the important types of furniture,—of which the leading ones are a table, a chair, a bed, and a cupboard or cabinet,—and to follow the changes in the idea and constructive principle of each type of furniture in successive periods, at the same time with the variations in decorative treament; which latter, it must be observed, are not special to furniture, but represent the general decorative taste of the day applied to furniture as to architecture and surface decoration. It would have been quite possible, with system and concentration, and by selecting a limited number of typical examples, to have produced a small book on the history of furniture which would have formed a comprehensive and satisfactory outline of the subject.

M. Litchfield's book shows no such attempt at a systematic treatment of his subject, it is in fact merely a creditable piece of book-making including a number of illustrations of various articles of furniture, forming rather a heterogeneous mixture, and accompanied by a running commentary which rambles about the subject in a desultory manner, the general chronological order being the only system observed. The portion of the subject which is best treated is the French and English eighteenth-century work, and of course that is the portion of the subject of which most is generally known and which at present interests English readers more, probably, than any other. The author is to be credited with doing justice to the good taste of Sheraton's early work, which, as has been pointed out in these columns, is in true taste much superior to Chippendale's, and, he notices the change for the worse in Sheraton's taste as it became influenced by the French taste of the Empire. This is, however, about the only piece of critical analysis that we have noticed in the book, in which things in good and bad taste are illustrated without much effort to discriminate, or teach the reader to discriminate, between what is good and bad, true and false. Such a thing as the carved frame by Radspieler of Munich, given on page 247, is vulgar to a degree, however cleverly executed; but it does not seem to incur any censure from the author. Some of the 1851 Exhibition furniture (old "blocks" of which have, we imagine, been made use of to fill up the tale of illustration) is a good deal better forgotten, and is certainly not worth serving up again in illustration of a furniture book for the present day.

In short, this is a creditable and handsome popular book, well got up and furnished with a large number of illustrations of more or less interest, and as a popular book it may have its use and its merits, though it can hardly be of much value to designers or to serious students of the subject.

The Public Health (London) Act, 1891. With Explanatory Notes, &c., by E. LEWIS THOMAS, M.A., LL.M., Barrister-at-Law. London: Knight & Co.

THIS is an exceedingly useful exposition of, and commentary on, the Public Health (London) Act of last year. It includes comparative tables of sections of repealed Acts and of existing enactments, a useful appendix containing the enactments applied, and the Orders and Model By-Laws of the Local Government Board; it has the additional merit of possessing a copious index. Many people are still unaware that last year there was accomplished for sanitary legislation in London what had been done sixteen years before for the remainder of the country. The Public Health (London) Act, 1891, is not only a codifying Act, but also an amending Act. "It is the result of the consolidation, by the Standing Committee on Law, of two Bills introduced into the House of Commons by Mr. Ritchie. The first Bill was a Bill to amend the law as it then was, the second Bill was to codify and consolidate the then existing enactments. The second Bill repealed and re-enacted more than thirty Acts, or portions of Acts, which applied to London, and which were variously known as the Nuisances Removal Acts, the Sanitary Acts, the Metropolis Management Acts, the Police Acts, Smoke Acts, Michael Angelo Taylor's Act, &c." The changes and improvements which have been effected are succinctly and lucidly pointed out by the author, and their bearings explained. Although the explanatory notes seem sufficiently full and complete, the book is nevertheless compendious in form, and is one which should be in the hands of every one engaged in metropolitan local government. Even the "intelligent ratepayer" would be all the better informed as a critic of local government matters if he would master this book.

The Public Health (London) Act, 1891, *a Handbook for the Use of House-Property Owners.* By WM. HARNETT BLANCH. London: P. S. King & Son.

THIS, to the special class to whom it appeals, will be found to be a very useful publication, containing as it does notes, index, and an explanatory chapter. While there are no doubt instances in which, by the operation of the law, hardships are entailed upon house-property-owners, the book seems to be published too exclusively in the interests of a class who have hitherto known how to look after themselves pretty well. The author appears to be the Secretary of "The London Freeholders' and Leaseholders' Defence Association," one of whose objects seems to be to help its members to do as little as possible in the way of sanitary work or anything else that will involve expenditure. No doubt, as the Association say in a kind of manifesto, "recent legislation has seriously affected the interests of the owners of house-property." And in the main very rightly so too, so far as sanitary legislation is concerned, as all who know London and are disinterested in the question will agree. Still, it is as well to have on record the views of the property-owners.

The Year Book of the Imperial Institute of the United Kingdom, the Colonies, and India. Compiled chiefly from Official Sources. London: Published by the Imperial Institute.

THIS is the first issue of a very useful and instructive statistical record of the resources and trade of the Colonial and Indian possessions of the British Empire. It is published under the authority of the Executive Council of the Imperial Institute, and is likely to prove a reference book of permanent value.

A Concise Dictionary of the English Language. By CHARLES ANNANDALE, M.A., LL.D. New and Enlarged Edition. London: Blackie & Son, Ltd. 1892.

THIS excellent work is based on Ogilvie's "Imperial Dictionary," and though it consists of nearly 850 closely-printed pages, the paper and typography are such that the book is not at all unwieldy. It is well printed and arranged, gives the etymology and pronunciation of words, and contains what appears to be a tolerably full vocabulary, literary, scientific, and technical, with colloquialisms and phrases, notes on synonyms, pronouncing lists of proper names, foreign words and phrases, abbreviations, &c. We say a "tolerably full" vocabulary, although in regard to technical words we miss "batter," the slope or inclination of a retaining wall, and "ramp," of a staircase,—to name only two examples. But, notwithstanding some omissions, the dictionary contains a large number of technical words not to be found outside the covers of technical dictionaries and encyclopædias. A useful feature is the alphabetical list of English writers, with dates of their birth and death, but this is not quite complete. For instance, while the name of James Fergusson is given as a writer on architecture, the name of J. H. Parker is absent. But no doubt the compiler of such a list has a difficult task in keeping it within reasonable limits of space. On the whole, we can cordially recommend the "Concise Dictionary of the English Language" as the best recent work of the kind which has come before us.

Spons' Engineers' and Contractors' Illustrated Book of Prices of Machines, Tools, Ironwork, and Contractors' Material. 1892-3. London: E. & F. N. Spon.

THIS is a very useful collection of excerpts from engineering catalogues, and is likely to be of considerable assistance in estimating, the prices of the articles illustrated and described being in most cases given. It seems to be a not unsuccessful attempt to bring together for one group of trades the most salient features of the catalogues of many leading firms. The book is well printed and got up, and has a good index.

"Reid's Patent Indexed Ready-Reckoner" (Newcastle-on-Tyne: Andrew Reid, Sons, & Co.) is now in its third edition. It readily shows the value of from 1 to 50,000 articles at any given rate, from one-sixteenth of a penny to £1. We have had occasion to use it several times since it has been on our desk, and we find it to be very speedy and handy, and absolutely accurate, as a ready-reckoner of course should be.——Those who have not yet had their holidays, and who are contemplating trips on the Continent, may most profitably invest sixpence in the purchase of one or other of the following convenient and well-printed and illustrated handbooks, viz.:—(1) "The Tourist Guide to the Continent," edited by Percy Lindley, and published, by the authority of the Great Eastern Railway Company, at 30, Fleet-street, and at the Continental Department, Liverpool-street Station; (2) "Walks in Holland,"—the term "walks" being elastically interpreted to include cycling, boating, railway, and coaching trips as well as journeys on foot; (3) "Walks in the Ardennes," with boating, fishing, cycling, and shooting notes; and (4) "Holidays in North Germany and Scandinavia." The three last-named are all edited by Percy Lindley and published at 30, Fleet-street. They are all very nicely got up and full of useful information to the intending tourist, and the illustrations, although necessarily small, are well-drawn and engraved, and likely to attract sketchers and other travellers in search of the picturesque (if not this autumn, owing to the presence of cholera in Hamburg, at any rate on the first available opportunity).

TRADE CATALOGUES.

Messrs. Merryweather & Sons have sent us their Catalogue (Section D) of Pumps and Water-Supply Apparatus. It is illustrated and priced, and includes many articles worthy the attention of municipal and sanitary engineers. From the same firm we have received an explanatory illustrated pamphlet on their method of supplying water to mansions, villages, institutions, farms, &c. It is well worth attention, and shows how country houses in isolated positions may be supplied with a view both to hygiene and protection against fire.

From Messrs. J. Tylor & Sons (Ltd.) we have received their new Catalogue (Part I.) of Sanitary Appliances, Pumping Apparatus, and General Fittings. It contains illustrations and descriptions of a great many excellent appliances, and a mass of useful information not often found in a catalogue. One of this firm's specialities is their flushing-rim lavatory basin, which embodies a very desirable and necessary improvement. It is not quite new, for we saw it some four years or more ago, and spoke approvingly of it; we are surprised that it has not altogether superseded the old form of basin. We cannot express our approval of the dark empty space, not easily to be got at, which seems to exist for the collection of dust beneath the "Column" Pedestal Closet (page 19 of Catalogue). With regard to this same closet (which has a very good form of basin) the lead trap is joined to the earthenware basin by a brass collar, and it is claimed that this is a better and safer method than the connexion between an earthenware trap and a leaden soil-pipe; but there is here also a joint between earthenware and metal, which is, however, on the inner or house side of the trap, though scarcely "above the trap," as is claimed. We are not satisfied that this is a wholly satisfactory solution of the difficulty, though it is certainly better and safer than a joint between an earthenware trap and a leaden soil-pipe on the out-go side of the trap. With regard to the "Pedestal" Valve Closet, figured on p. 12 of the catalogue, it is said that "it does not require a small supply cistern." Why not? And how is it supplied? The catalogue is admirably got up, and will be found exceedingly useful when specifying.

Messrs. Steel & Garland recently sent us one of their new Catalogues (Book S) of stove-grates, mantel registers, and over-mantels, ranges, warm-air stoves, curbs, fenders, rests, &c. It is well printed and illustrated, and we would call especial attention to the "Marlborough" Grate (Garland's patent), which appears to possess many advantages,—of which, if we mistake not, we have before spoken. It has an adjustable canopy, acting as a register door; an overhanging fire-brick back, with Teale's economiser; and steel vertical bars. It is claimed for it that it ensures great heating power combined with economy in fuel, the rate of combustion being under control.

Messrs. Hayward Tyler & Co. have sent us their "List A" of "Plumbers', Waterworks', and Fire Fittings," a very complete and useful priced and illustrated list of water and sanitary fittings of all kinds. But why, we ask once more, will firms of repute continue to manufacture, and to illustrate and price in their catalogues, that long-condemned abomination the "pan-closet," with its filthy "container"? We shall no doubt be told again, as we have been told before, that "there is a demand for them." If so, "the more's the pity" that reputable firms should vitiate their catalogues by the inclusion of such things.

Messrs. Thomas Crapper & Co. have also sent us their new Catalogue of Sanitary Appliances, illustrated and priced. It is a very useful book, and gives particulars of some very good things, including the "Improved Kenon Trap" and some excellent valve and other closets, water-waste preventers, baths and bath-fittings, &c. Of most of these we have spoken in terms of commendation on former occasions.

Messrs. Adams & Co. send us their new Catalogue of patent sanitary specialties, including automatic-flushing latrines for schools and institutions. These latrines are admirably adapted for their purpose, and elicited the warm approval of a French specialist in school sanitation who attended last year's International Congress of Hygiene. Lavatories, urinals, closets, flushing-tanks, gullies, &c., are among the many other items of the catalogue, which is in two sections, one of which is devoted to ironwork.

Mr. A. M. Fowler, jun., A.M.Inst.C.E., sends us a small illustrated catalogue of his "self-acting water-closets," flushed with slop-water. These may, of course, be advantageously used in situations where water for flushing purposes is scarce, but they are far from being the ideal form of water-closet. The same remark applies even more to the latrines flushed in the same manner. In "Arrangements C & D" there are, in lieu of closet-pans, vertical drain-pipe shafts some 3 ft. or 4 ft. deep, which can never be flushed, the flush being entirely confined to the horizontal pipe below these shafts.

LECTURES ON SANITARY SCIENCE.—Mr. Allan Greenwell, Surveyor and Inspector to the Frome Rural Sanitary Authority, has been appointed by the Technical Education Committee for the Frome District to deliver a course of lectures on "Sanitary Science."

Correspondence.

To the Editor of THE BUILDER.

THE INSTITUTE AND ARCHITECTURE.

SIR,—I am glad Mr. Belcher has drawn attention to the relations of the Institute to architects, and architecture as a fine art. The policy being pursued by the R.I.B.A. has brought about the critical state of things he has the courage to recognise; on its decision regarding the qualification of Fellows—now under consideration—depends its existence as an Institute of "Architects." Many of us deplore that the question has ever been raised, but as it is, the time has come to look it fairly and squarely in the face, and the question of questions is simply this, "Is the R.I.B.A. to remain an Institute of 'Architects,' or what?" It has now as Mr. Belcher says, "an opportunity to put itself right with regard to such matters," and everyone who has the interests not only of the Institute but of architecture at heart, must fervently hope the opportunity will not be thrown away.

The Institute is called upon to legislate on the qualification for Fellowship,—for whom? Not those inside its ranks, but those who are *outside*, and it is notorious that many of our leading architects are among the latter; and not only so, but it has lost within the last year or eighteen months several clever young men, who, in all probability, will be the leaders in the future, hence it becomes of the first importance to ascertain not so much what the insiders may consider applicable to those outside but what the outsiders themselves desire, and what is wrong with the constitution or the policy of the Institute itself, which keeps and drives such men from its ranks. If it is to be an Institute of *Architects* in the future, the anomaly of many men who are influencing the architectural thought and progress of the day standing aloof from its councils must cease; and surely one very obvious course is to invite those very men for whom it is proposed to legislate to favour us with the benefit of their views, if peradventure some way may be found to meet them. Another obvious course is to insist that, whatever may have been done in the past, all future Fellows must first and foremost be architects in the strict sense of the word. Mr. Belcher has told us truly that an architect must be an artist, or he has no right to the title. It is, therefore, only by the "quality" of his work he can have any claim to the distinction of "Fellow," for if it be not a distinction, why have two classes, and what inducement is there for a man to go up from the one to the other? Still another obvious course is to require that every candidate shall be the designer of his own work,—in other words, an architect in fact as well as in name. If no amount of examination can make a man an architect, then surely no test is needed beyond the quality and the personalty of his work. By it alone he is an architect, or he is not, and, therefore, worthy of a Fellowship or the reverse.

Just how all this may be best accomplished is what is now under consideration, and it is for the Institute to find a satisfactory solution of the problem. J. M. BRYDON.

5, *Cambridge-place, Regent's Park, N.W.*,
September 5, 1892.

DILAPIDATIONS.

SIR,—I have not observed in the *Builder* any notice of the case of Tichborne *v.* Weir, which was recently decided by the Court of Appeal; a report appears in the *City Press* of August 31.

This case is of much importance to both lessors and lessees, as it opens quite a new question, and I therefore think it desirable to draw attention to it.

It was held that as the defendant Weir held an assignment from one Giraud, who held the lease as mortgagee, Giraud could only transfer his own equitable interest in the lease and any right accruing to him through long possession; he had not acquired the lease itself, therefore he could not assign it to the defendant; and as the defendant had not taken the lessee's estate under the lease, he was not bound by the covenants of the lease, and the payment of rent did not make him liable to them. The performance of the covenants can only be enforced against a tenant when it can be proved that he is the assignee of the lease, or is prevented by his own act from denying the assignment. The decision of the court below in favour of defendant was therefore upheld.

The result of this judgment seems to be that when any mortgagee forecloses neither he nor any of his assignees are in any way liable under the covenants of the lease; and, as the result, at the expiration of the lease, unless the lessor can get at the defaulting mortgagor or his heirs, executors, administrators, or assigns (a most unlikely possibility), he must put the premises in repair himself and at his own cost; and, as very many leasehold properties contain an assignment from a mortgagee somewhere in the title, the decision must be very far-reaching, and totally alter the position of lessor and lessee in many dilapidation cases.

BERNARD DICKSEE.

September 5, 1892.

WIGGENHALL, ST. MARY.

SIR,—Some months ago you were so good as to insert a letter of mine on the destruction of ancient rood screens. I mentioned a rumour that the famous Caroline screen, dated 1625, had been removed from the church of Wiggenhall, St. Mary the Virgin, so noted for its woodwork and sixteenth-century brass lectern. I regret to say that a recent visit shows even greater damage; for not only is the screen gone, but with it the lay impropriator has carried off the stalls as well. Nothing remains in the chancel of the old work but the lower painted panels of the Mediæval screen, which stood just east of the more recent one. These the present Vicar found knocking about and has set up against the east wall. So far as I could learn, no faculty was obtained for these destructive works; in which case I imagine the impropriator can be compelled to reinstate them. The new chancel fittings and reredos seem to show an architect's hand. It would be interesting to know his name.

In the neighbouring church of Tilney, All Saints, I found the fine screen (1618) still *in situ;* but a double Norman piscina has been either destroyed or blocked,—quite recently,—and the sanctuary levels are so altered that not one of the fine Decorated sedilia can now be used. VIATOR.

THOMSON'S PATENT BALL-VALVES.

SIR,—I shall be obliged if one of your readers can inform me of the name and address of the present maker of Thomson's patent ball-valves, sold in 1882 by a Mr. Varicas. H. H.

The Student's Column.

CONCRETE XI.

ARTIFICIAL CEMENTS (*continued*).

PORTLAND: ADHESION.

CEMENTS have not been as frequently tested for adhesion as for tensile strength. A somewhat elaborate series of experiments with American cements and bricks is tabulated in Gilmore's "Limes, Hydraulic Cements, and Mortars," and General Sir C. W. Pasley in England, about fifty years ago, made similar experiments by tearing apart bricks and various building-stones which had been united by an artificial cement. As far as the adhesive strength of cement is concerned, these latter experiments are quite out of date. A circular issued some years ago by the Selenitic Cement Company shows that a force of 23 lbs. per square inch is required to tear apart common stock-bricks after they have been united for twenty-eight days by a mortar consisting of one part Portland cement to four parts sand. Mr. Grant found that bricks cemented together with mortar composed of one part cement to two parts sand, required, at the end of twenty-eight days, a force varying from 15 lbs. to 30 lbs. per square inch to tear them apart.

The most extensive series of experiments on the adhesive strength of Portland cement was carried out by Mr. Mann. The tests were made by tearing apart small pieces of sawn, close-grained limestone, which had been joined together with cement. His experiments showed that the adhesive strength did not bear a uniform relation to the tensile or cohesive strength, but varied from about 1 to 5 to 1 to 9 in the seven days' tests, and from 1 to 3 to 1 to 5 in the twenty-eight days' tests. The adhesive strength, it will be seen, increased more rapidly than the cohesive, in the twenty-one days which elapsed between the two tests. He also proved that the finer a cement is ground the greater is its adhesive strength. The average adhesive strength of neat Portland cement, as tested by Mr. Mann, may be considered to be between 80 lbs. and 90 lbs. per square inch, at twenty-eight days; the tests being carried out with cement bedded between pieces of sawn, close-grained limestone.

The adhesion varies not only with the quality of the cement, but also with the quality as well as quantity of the sand, the porosity of the substances joined together, their degree of saturation, and, of course, the length of time during which they have been joined. The thorough saturation with water of the materials to be united, and the fineness of the cement, are important if high results are to be obtained.

Increase of Strength, and Durability.—We have now considered the tensile, compressive, and adhesive strength of Portland cement at early dates, and have seen the remarkable degree of strength which it attains in these limited periods. The accompanying diagram (Fig. 2) shows grapically the tensile strength, to the age of one year, of Portland cement mixed with different proportions of clean pit-sand. The dotted line represents the actual breaking strength at the various dates, and the full line shows the probable mean curve of strength. The figure is based on experiments made by Mr. Grant, in 1862-3,* on briquettes of the shape marked A in Fig. 1 (see the *Builder* for August 27); as we have stated, such briquettes give considerably lower results than are obtained with the briquettes of better shape which are now used. For this reason, 50 per cent. has, in each case, been added to the strengths obtained by Mr. Grant. The chief lesson to be learnt from Mr. Grant's tests is the difference in the rate of hardening of different mortars; for instance, neat cement would support 300 lbs. at one week; 1 to 1 mortar would do the same at 7 weeks; 1 to 2 at 15 weeks; and 1 to 3 not until after a year. When we are told

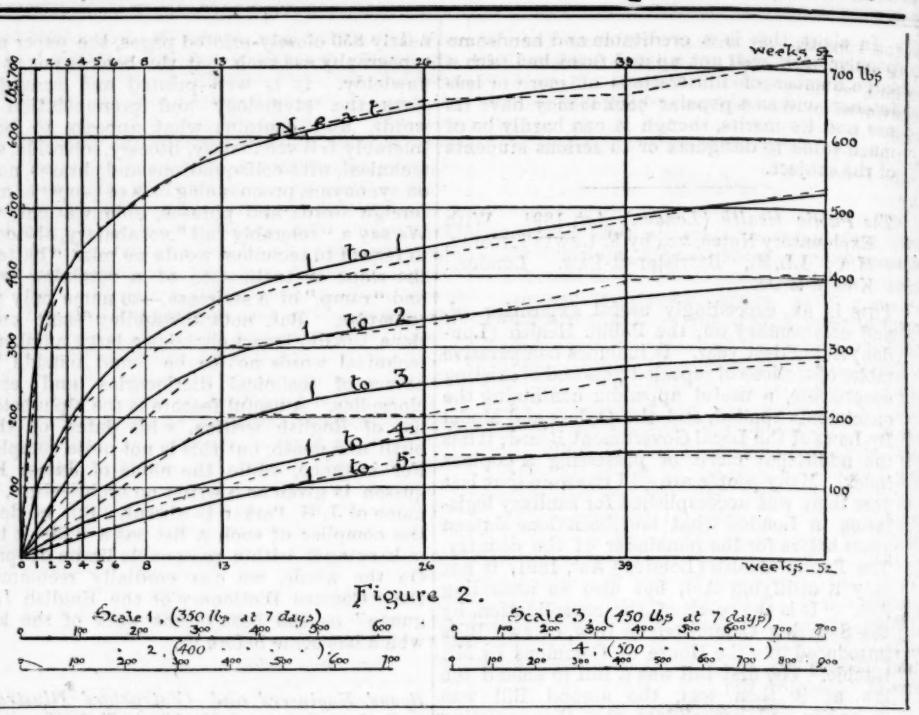


Figure 2.

* "Proceedings of the Institution of Civil Engineers," vol. xxv. (1865-6).

that the supports of ordinary concrete floors may be struck in one week after the floors have been laid, we have only to refer to this figure to be convinced of the danger of following such advice. A period of from four to six weeks ought always to elapse before any stress is put on such floors, either by removing the supports or by traffic. It must not be considered that all cements increase in strength in the degree shown in the figure, or that the ratio between the neat cement and the mortars is always the same; the figure must be taken as approximate only. The tensile strength of the neat cement at seven days is only 300 lbs. per square inch, even after allowance has been made for the imperfect form of the briquette used in testing; nowadays, a strength of 450 lbs. to 600 lbs. is common. The strength at different ages of mortars made from cements of various initial strengths, may be *roughly* estimated by using a different scale for measuring the curve of strength from the base line; thus, Scale 1 (see fig. 2) may be used for cements with a strength of 350 lbs. at seven days, Scale 2 for 400, Scale 3 for 450, and Scale 4 for 500.

The further question remains,—Is its strength permanent? Mr. Grant says that the process of hardening goes on for years, and "there is no reason to fear that good cement ever deteriorates." His opinion is based on the result of a series of experiments extending over ten years (1858 to 1868); the tests during the last three years gave slightly lower results, but this he considers to have been due to the fact that the briquettes had been neglected and moved from place to place owing to the death of the person who had had charge of them. We need not say that Mr. Grant's opinion on any matter concerning Portland cement carries great weight.

Mr. A. E. Carey, in a paper read in November, 1891, before the Institution of Civil Engineers, said:—"The molecular structure of Portland cement changes with age, its hardness and brittleness increasing, and its elasticity diminishing. There is a point, therefore, at which the cement begins to show a falling off in tensile strength, while the compression tests continue to improve. The gauging of cement with seawater [instead of fresh] allows this result to be attained more speedily with the same cement."

Professor Unwin states that "for ordinary tension briquettes the gain of strength is nearly proportional to the cube root of the time of hardening, and that both for a neat cement and cement mortar." In other words, if the strength at seven days be taken as 1, the strength at twenty-eight days will be 1·6, and at six weeks 2; this shows the wisdom of allowing the centres of concrete arches and floors to remain in position as long as possible.

Water. — The quantity of water used in making briquettes has a great influence on the results of the tests. Too much water is injurious, and it is therefore customary to use no more than is necessary to bind the cement,—say, 18 or 20 per cent. by weight. This is a matter which must, to some extent, be left to the judgment of the person making the test, but it may be interesting to give the quantity of water used in Germany for different mixtures of cement and sand, the proportions being all obtained by weight:—

TABLE XV.

Quantity of Water Required in Briquettes.

	Cement.		Sand.		Water.
Neat cement	100	..	—	..	{ 27·6* / 25†
1 cement to 1 sand.	50	..	50	..	12
1 " " 3 "	25	..	75	..	10
1 " " 4 "	20	..	80	..	10
1 " " 5 "	16·6	..	83·3	..	10

* Quick-setting. † Slow-setting.

Need we add that the water used with the cement ought to be pure, free from earthy and organic matter, &c.

Time of Setting.—The time of setting of different Portland cements varies from a few minutes (say, ten) to as many hours. If a pat of neat cement is indented by a moderate pressure of the thumb-nail at the end of two hours, it may be considered slow-setting. It is customary now to notice the time of "initial set," that is, the commencement of the stiffening process, and the "set hard," which is the time when the cement will bear without indentation a moderate pressure of the thumb-nail. The former is valuable, as it enables us to form an idea of the limit of time within which the cement ought to be deposited in work after being gauged. It is determined by gauging a sample of cement and observing one or more pats kept in air. If greater accuracy be required, the time of setting can be ascertained by the needle test, but the thumb-nail test is usually sufficient.

As a rule, a highly-burnt cement sets more slowly than one lightly burnt, but there are exceptions, and more frequently the rate of setting depends rather on the composition of the cement than on the burning. An excess of clay increases the rapidity of the setting, as we have seen in the case of Roman and similar cements; excess of lime has the opposite effect. It is generally held that the best slow-setting cements are eventually stronger than the best quick-setting. The time of setting is delayed by storing and thoroughly air-slaking the cement, and the same effect can be produced by adding sulphuric acid or gypsum (sulphate of lime) to the cement on gauging. In either case, the maximum strength of the cement is more rapidly attained. Experiments made by Mr. Grant in 1877 showed that cement spread in air for seventeen hours took five or ten minutes longer to set, and bore at seven days 5 per cent. more tensile stress than the same cement gauged as soon as it was taken from the sacks. Experiments by Messrs. Dyckerhoff confirm this, and show further that the addition of 1 per cent. of gypsum to a cement, which set in twenty minutes, delayed the setting to 600 minutes, and 2 per cent. delayed it to 840 minutes, and in both cases the strength of the cement, whether tested neat or with sand, was considerably increased; the increase of strength with 2 per cent. of gypsum was about 13 per cent. at the end of a year. It is now known that gypsum endangers the permanence of the strength of cement.

Storing the cement for some months altered the time of setting from twenty minutes to 630, and the stored cement mixed with three parts standard sand was 20 per cent. stronger at the end of a year than the original cement tested in the same way.

The advantages possessed by slow-setting cements in strength, convenience of manipulation, &c., are of great value, and such cements are almost always preferable to quick-setting ones.

Soundness.—The fineness, tensile strength, and soundness are three of the most important particulars to be ascertained respecting any Portland cement. The fineness of a cement is an indication, other things being equal, of its sand-carrying properties,—the finer the cement the more sand will it take. A finely-ground cement is also less likely to be unsound than a coarse cement. The importance of a high tensile strength is patent to every one. But if a cement be finely-ground and of great strength, and withal have not soundness, it ought not to be used. An unsound cement may attain great strength at first; concrete made with it may harden properly, and seem for weeks, and even months, to be thoroughly hard and sound, but gradually a change is apparent, the concrete begins to disintegrate, and after a time becomes an almost incoherent mass of rubbish. Then, as the author has known, the architect must perforce order the work to be done over again, and time and money are lost. But sometimes the defect is not observed before the final certificate is granted; perhaps the foundations are covered before the unsoundness is apparent, or the floors have their upper and lower surfaces finished, and so on, but sooner or later the failure is visible. In one case, 18-in. brick walls were thrust out of perpendicular by the expansion of concrete floors made with unsound cement.

A test for soundness can be carried out without much difficulty, but as some cements take such a long time before their unsoundness develops to any dangerous extent, an artificial means of accelerating the hardening process has been desired. Some persons have advocated, but not very wisely, the making of thin pats of cement-paste on an iron plate and heating them on a gas-jet or in front of a fire. The best apparatus which has yet been devised is that described by Mr. Faija in his book on Portland cement. An illustration and description of this apparatus were given in the *Builder* for November 22, 1890. The fact that moist heat accelerates the hardening of cement is the leading idea in Mr. Faija's test, and this is turned to account by placing the cement pats on a slip of glass within a closed vessel, containing water under the glass; this water is kept at a fairly uniform temperature of about 112 deg. to 117 deg. Fahr. After remaining three hours in the damp atmosphere of this vessel the pats are put into the hot water and allowed to remain there for twelve or fifteen hours, when they are taken out and examined for cracks, lifting from the glass, warping, &c. If these are visible, the cement must be accepted with caution, or, in bad cases, condemned altogether.

It is, however, possible for anyone to carry out a test which will be of some aid in ascertaining the soundness of a cement, although it is not of equal value to the test already described. Take samples of the cement from three or four bags or barrels, immediately on their arrival at the building-site, and mix the different samples together dry. Then make, on two pieces of glass, two pats of neat cement, say, 2 in. or 3 in. in diameter, and about ½ in. thick at the centre, but thin at the edges. The time of setting may be ascertained during the progress of this test. When the pats are set hard, place one in water and examine it daily. If the cement have any tendency to "blow,"—*i.e.*, if it be unsound,—very fine cracks will appear at the edges, and the edges may leave the glass. The other pat, kept in air, ought when hard to have a greyish-white hue; a buff colour indicates an "over-clayed" cement, and such cements are weaker than cements of proper composition, and are, as has already been stated, liable to crumble away on exposure to the atmosphere. Another cause of disintegration is the presence of free quicklime in the cement; the danger arising from this can be minimised by properly air-slaking the cement before using it, but an over-clayed cement cannot be improved,—it ought to be rejected. Similar pats made of cement and sand (1 to 3) may be made and tested as above with advantage.

Air-slaking.— Some persons consider that ordinarily good Portland cement does not contain more than 1 per cent. of free lime, but as no method of accurately ascertaining this exists, the figure is, perhaps, more or less guess-work. Judging from the increase of bulk, which ensues from thorough air-slaking, we are inclined to believe that cement of that description contains in many cases 3 or 4 per cent. of free lime, and some cements probably contain considerably more than this. When we remember that calcium oxide is converted by slaking into calcium hydrate, a substance two or three times its bulk, we cannot fail to see that the development of this slaking action in a cement-paste which has already begun to set, must be injurious and must at the very least lessen its ultimate strength, while in extreme cases it may prove disastrous.

GENERAL BUILDING NEWS.

VILLA RESIDENCES, BIRMINGHAM. — Building operations have been commenced for the erection of forty villa residences, situated on the "Rotton Park Estate." Twenty of these houses will front to Gillott-road, the remaining twenty will front to Summerfield-crescent; the total length of frontage exceeding 900 ft. Each of these residences will contain drawing and sitting rooms, two pantries, kitchen, scullery, and usual outbuildings, five bedrooms, and bath-room, &c. The front elevation will be Gothic in style. The total cost of erection is estimated at about 15,000*l.* The contractor is Mr. Edward Airey, and the architect Mr. J. Statham Davis, both of Birmingham.

CONGREGATIONAL CHURCH, BIRKENHEAD.—The foundation-stone of a new Congregational church was laid on the 3rd inst. The building will have accommodation for 350 persons, and the work is being carried out by Mr. S. E. Dean, at a cost of 2,000*l.*, from the designs and under the superintendence of Mr. Thomas W. Cubbon, architect, of Birkenhead.

NEW CATHOLIC CHURCH AT TENBY. — On the 10th ult. the foundation-stone of a new Catholic Church at Tenby was laid. According to the *Tablet*, the church is being built on ground purchased from the Corporation of Tenby for a sum of 350*l.*, and which formed a portion of Potter's Field recently acquired by that body for street improvements. The site is to the south-east of the south-west gateway. The principal dimensions of the church will be:—Chancel, 20 ft. by 16 ft. 6 in.; sacristy, 15 ft. 6 in. by 12 ft.; nave, 63 ft. by 30 ft. On the south side will be a side chapel and confessional, the nave being lighted on that side by four two-light windows. The east end will abut on the road, the sanctuary being lighted by two single light windows. It will have an elevation externally of 47 ft. The east front will contain two traceried windows with a niche between to contain a statue of St. Teilo. On the south side of the nave will be an arcade, preparatory to the extension of the building by an aisle. In the recesses will be temporary windows for the purposes of light on that side of the church. In the west end there will be a

four-light window, over a spacious gallery, the latter being approached through a turret stair. The turret will have an elevation of 40 ft., and a small belfry, surmounted by a vane and cross, will be built of native stone, with Bath stone dressings for windows. The architect is Mr. F. A. Walters, F.S.A., and the contractor is Mr. George Richards, builder, Tenby. The cost of the building, exclusive of the site, will be upwards of 2,000*l.*

WESLEYAN SCHOOL BUILDINGS, CARDIFF.—The newly-erected Wesley Centenary Sunday Schools in Conway-road, Cardiff, were opened on the 24th ult. The building consists of a large assembly-hall at the rear, with ten class-rooms opening out from the ground floor and a similar number from the gallery, while the front portion consists of a suite of large rooms for use as a church-parlour and infants' and adults' class-rooms. The premises, which have been erected at a cost, including the freehold site, of about 3,500*l.*, were built by Mr. G. E. Griffiths from the designs of Messrs. Habershon & Fawckner, architects, Cardiff.

BANK PREMISES, NEWPORT, MON.—New banking premises for the Newport branch of the National Provincial Bank have been erected at the corner of High-street and Tredegar-place. The building was designed by Mr. C. R. Gribble, the architect of the banking company, and the contract for building has been carried out by Mr. John Linton, of Newport. The building rises from the pavement level with plinths of white Devonshire granite, which give place, 5 ft. upwards, to Bath stone, of which both façades are built. There are five bays to High-street, and a similar number to Tredegar-place, between each bay being three-quarter engaged columns, with keystone heads over each of the windows. Underneath the balustrading is a sculptured floral frieze. All the floors are fireproof, the joists being of iron, filled with Portland cement and concrete, the flooring being of oak block and mosaic. The large banking-room is 42 ft. square, and is surrounded by pilasters of Devonshire marble, with bases of faïence work and Ionic capitals. The dado is also of faïence work, and the four iron columns which form the supports for the ceiling are enclosed in the same material. The floor is laid with mosaic and oak blocks inside the counters. The manager's room is opposite the main entrance. A lift communicates with the three strong rooms above. These are fire and burglar proof, being lined with white glazed bricks and having doors from Messrs. Chubb's factory.

PUBLIC HALLS, LENZIE.—The Lenzie Public Halls, the site of which is upon the east side of the public road leading from Lenzie to Kirkintilloch, Dumbarton, were opened on the 31st ult. The principal entrance to the halls is by a wide corridor leading to the entrance lobby, in which are placed the stairs leading to the lesser hall on the upper floor. On each side of the entrance corridor are placed the ladies' and gentlemen's cloak-rooms, with lavatories attached. Immediately over these apartments is the lesser hall, 40 ft. by 20 ft., lighted from front and ends by transomed and mullioned windows. To the rear of this, and on the ground floor, is the large hall, 60 ft. by 40 ft., with a small projecting gallery at the east end, and with raised platform at the west. This hall is finished with a coved ceiling in plaster work, and is lighted on both sides by tall, circular-headed windows, the lower part of the walls being finished in wood. It is seated for 600 persons. By taking advantage of the fall upon the ground, and by raising the floor of the hall a little above the roadway, accommodation has been found beneath the halls for billiard-room, reading-room, two waiting-rooms, kitchen, heating chamber, &c., all lighted by side windows, and having the necessary lavatory accommodation. The waiting-rooms are connected with the hall by stairs at each end of the platform. The lighting, heating, ventilation, and sanitary arrangements have been carefully provided for. The front elevation is in the Scottish Baronial style, simply treated, with transomed and mullioned windows and crow-stepped gables. Mr. George Ferguson, builder, Glasgow, was the contractor for the whole of the work, and Mr. Tennant (of Messrs. Bauldie & Tennant, Glasgow) was architect.

FREE CHURCH, CARNTYNE, LANARKSHIRE.—The memorial-stone of Carntyne Free Church, Shettleston, was laid on the 3rd inst. The site of the church is on the main road leading to Shettleston at the corner of Wellshot-road. The style adopted is Gothic. The principal front of the church will be toward the main street, and the gable there, which is 54 ft. high, is pierced with two traceried windows, and has octagonal buttresses at each side. The windows to the side street have Gothic heads and double mullions in each. The entrance to the church is in the centre of the front gable, by a wide doorway communicating with a vestibule, from which two doors lead into the interior, and whence access is also gained to the gallery stair. The area of the church is seated for 450, and there is an end gallery containing 110 sittings. The church is so constructed that, when required, side galleries can be added to increase the accommodation. The arrangements of the interior admit of a ceiling 40 ft. in height to apex. A vestry, class-room, and small hall for prayer meetings will be erected behind the church. Mr. Robt. A. Bryden, of Messrs. Clarke & Bell, architects, Glasgow, has prepared the plans, and the following are the contractors for the work:—Mason and joiner work, Messrs. Guthrie & Co.; slater work, William Gordon; plumber work, James Raeside; plaster work, James Dairon & Sons; glazier work, Wm. Meikle & Sons; iron work, Jas. M'Millan; and painter work, M'Culloch & Co.

PRIMITIVE METHODIST CHURCH, TRIMDON GRANGE, DURHAM.—On the 3rd inst. a Primitive Methodist church was opened at Trimdon Grange. The building is of red brick, with stone facings, and of Gothic style. The plans are from the designs of Mr. J. F. Longstaff, Trimdon Grange, under whose superintendence the building has been erected. The builder was Mr. Burn, of Hartlepool.

INTERMEDIATE SCHOOL, MERTHYR TYDFIL.—The design for an intermediate school submitted by Mr. James Crombie, A.R.I.B.A., London, has just been accepted, and he has been appointed to carry out the work. The school will accommodate 100 boys and eighty girls, and will have besides the usual school and class-rooms, a gymnasium, workshop, laboratory, art, and cookery class-rooms, and a residence for the caretaker.

NEW STATION HOTEL, NEWCASTLE.—The new hotel attached to the Central Railway Station, Newcastle, is, says the *Newcastle Chronicle*, now virtually complete. The hotel stands facing Neville-street, at the east corner of the station. It has a frontage of 310½ ft., and the style is a free treatment of the Classic. The building has been designed and carried out by Mr. William Bell, the N.E.R. Company's architect, the chief clerk of the works being Mr. Richard Story. Outside the stone portico of the hotel is a light iron carriage verandah. It is supported on iron columns, over which is a spandrel filled in with cast metal work. The roof over is glazed. Passing through the entrance lobby to the hall, and ascending a short flight of steps, the higher level of the hall floor is reached, which is paved in mosaic work. The hall is 60 ft. long by 20 ft. wide, is on the same level as the ground-floor rooms, and is broken up by a staircase rising in easy flights to the floor levels above. The staircase is built in cement, with marble facings at each end where seen. Heating coils have been placed in the entrance to warm the air, which, in rising, draws out the vitiated air from the adjoining corridors to the roof, through which it is conducted by means of extractors. For the interior decoration faïence work, produced at the Burmantofts works, Leeds, has been largely used. In the main hall a lobby-screen, executed in walnut, has been placed. The height is divided into three panels, and separated by pilasters fluted, surmounted by moulded caps, supporting a curved frieze and enriched cornice with pediment over. The upper panels are glazed with tinted glass with floral designs in centre. There are three doors placed in the screen, but it is intended to use only the side doors. A roof curved to line with pediment and panelled on the under side completes the screen. On the left of the hall, facing the porter's box, there is a telephone office. Adjoining the telephone office is the luggage lift. There is also a large receiving room provided for luggage close by the lift. The passenger lift, which is situated on the opposite side of the hall, is separated from the offices by the corridor leading to the manager's room, &c. On the left of the entrance-hall is the corridor leading to the coffee-rooms, reading and writing room, dining-room, serving and still room, and ladies' lavatories, &c.; also to the billiard and smoke rooms. Outside the entrance of the coffee-room is the ascending staircase, communicating with all the upper floors; and also the descending staircase, by which the billiard-room is approached. This is built in marble, and the side walls are treated in faïence. At the foot of the staircase is the refreshment-bar. Lower down the corridor is the smoke-room, with lavatories and convenience for gentlemen opposite; then further on, at the end of the corridor, the entrance of billiard-room is reached. The arrangement of the rooms of the first floor is very similar to that of the ground floor, with the exception that the space over the coffee-room is divided into sitting-rooms of ordinary size. Most of the rooms on the first floor facing the street are to be used as sitting-rooms, and those at the back set apart as bed-rooms. This floor is taken up with large drawing and dining rooms, lavatories for ladies and gentlemen, with bath-room, &c., and the staircase connecting each floor. The corridors leading to the rooms on all the floors are paved with mosaic. All the rooms, both on ground, first, second, and third floors, have been fitted up with the electric light and are fitted with electric bells, which communicate with several centres. In the basement of the building provision is made in separate larders for the reception of food and stores, large refrigerators being provided for perishable articles. From the kitchen the food is passed by means of lifts to the service rooms on the various floors. The hot-water service for baths, sinks, lavatories, &c., throughout the building, is generated from one centre in the basement, consisting of two steam-heaters, with circulation-pipes carried from same throughout the building. The entrance-hall, corridors, and staircase, and the principal rooms on each third and first floors are heated by means of low pressure steam radiators and air circulators, which, in the case of the principal rooms, are arranged with fresh-air inlets from the outside. The ventilation of the principal rooms, urinals, and water-closets is provided for by means of fresh air inlet tubes at the floor-line, and foul air extraction tubes in the ceilings, carried to a main ventilation shaft in the centre of the building and rising above the roof, arranged with an extracting fan, and worked by means of a hydraulic motor, the waste water from which is used for automatically flushing the drains. For protection from fire there is a series of hydrants, mains passing through each floor, arranged with valves and hose pipes to cover all points. These mains are also used as service mains for general purposes, to ensure their always being charged, and are coupled to a large tank in the tower and to the company's main. The steam boilers are placed in a boiler house remote from the hotel, and the steam conveyed to same through a subway. The contractor for the whole building was Mr. Walter Scott, under whom the following sub-contractors have carried out the different classes of work:—Messrs. W. B. Wilkinson & Co., Newcastle, cement work; The Leeds Fireclay Co., faïence work; R. Hardman, Powell, & Co., Birmingham, balustrading; Benham & Sons, London, cooking and hot water, &c.; Mr. J. H. Shouksmith, York, plumbing work; Messrs. Robertson & Sons, Newcastle, and Mr. Baguley, glazing; Messrs. Diespecker & Co., London, mosaic work; Messrs. G. Izant & Sons, London, electric bells; Mr. G. Siemens, London, electric light; Mr. J. F. Ebner, London, the parquet flooring; Messrs. Emley & Son, Newcastle, marble work.

SANITARY AND ENGINEERING NEWS.

MAREHAY SEWERAGE SCHEME.—For some years past (according to the *Ripley and Heanor News*) the Belper Rural Sanitary Authority have had under consideration the general insanitary condition of the hamlet of Marehay, and various suggestions have from time to time been made and discussed with a view to providing the hamlet with a proper system of sewers and efficient means of sewage disposal. The recent establishment of a new colliery, and the opening out and rapid development of a quantity of new building land in the immediate neighbourhood, have brought the question to the acute stage, which led to the matter being placed some time ago in the hands of Mr. Robert Argile, C.E., of Ripley, and in pursuance of a scheme which that gentleman devised, a Local Government inquiry was held on Thursday, the 18th ult., before Mr. Frederick Herbert Tulloch, A.M.Inst.C.E., in reference to an application made by the Sanitary Authority for permission to borrow the sum of 3,700*l.* for the purchase of land for sewage disposal, and carrying out the works included in the scheme contemplated. The population of Marehay at present is estimated to be about 700, which is distributed mainly along three lines of road, in each of which it is proposed to construct main sewers, meeting at a point near the Royal Oak Inn, from whence the outfall sewer will be carried a short distance along the Derby-road, thence following an occupation road and public footpath eastwards across the Ripley branch of the Midland Railway, and an adjacent brook course, then southwards through a small plantation to four and a half acres of land which has been compulsorily purchased for the purpose of sewage disposal. The gradients of the district being favourable, there are no special difficulties to be encountered in the construction of the several lines of sewers, which nowhere exceed 9 in. in diameter except a short length in the outfall sewer, where the gradient is somewhat flatter. Provision is made in the various manholes for the ready flushing of any length of sewer which will ordinarily be periodically accomplished on the whole system by means of three self-acting flushing-tanks near the upper ends of the several lines of sewers. The system of "broad irrigation" has been adopted. The Inspector of the Local Government Board will report to the Local Government Board in due course.

STAINED GLASS AND DECORATION.

PAINTED DECORATIONS, ALL SAINTS' CHURCH, SOUTH ACTON.—Messrs. Powell Bros., of Park-square, Leeds, have just completed a series of fresco paintings upon the chancel walls on either side of the altar of All Saints' Church, South Acton. There are eight paintings in all, and they are surmounted by carved oak, forming an arcade. The paintings on the left hand represent the Worship of Earth, and those on the right hand the Worship of Heaven, in illustration, respectively, of the texts,—"We pray Thee help Thy servants, whom Thou hast redeemed with Thy precious blood," and "To Thee all angels cry aloud, the heavens and all the powers therein." The draperies are, in most instances, white, with some small portions of subdued colour here and there; bright and pure colour being only used in the plumage of the angels' wings. The background is gold throughout. The work was unveiled on the 28th ult.

FOREIGN AND COLONIAL.

FRANCE.—In making excavations for a road near Autun (Saône-et-Loire) the workmen have come upon the remains of a Roman canal, cut in the rock, and containing several specimens of red and black pottery.——The monument to the Lyons poet, Josephin Soulary, which is to be erected by public subscription and placed in the town, is to be competed for; the site chosen is the Place Sainte-Claire. ——The Lyons Museum has just received a legacy from the sculptor Charles Degeorge (who has been dead some years) of a fine head of "Gitana" painted by Henri Regnault.——The statue of Eugène Pelletan, by M. Aubé, was inaugurated last Sunday at Royan.——MM. Eude and Alphonse Richardière, Parisian architects, are to construct the national monument to Joan of Arc at Vaucouleurs. The first stone is very shortly to be laid. The ruins of the chapel where she is supposed to have worshipped are to be preserved, and will form part of the pedestal on which the statue will stand. —— Last Sunday the monument to the memory of Colonel Bourras was inaugurated at Pompignan (Gard). It is the work of Léopold Morin.——A monument is very shortly to be inaugurated at Laval (Mayenne) in commemoration of the last battle of the Army of the Loire in 1871. This monument is the joint work of M. Ridel, architect of the Department, and M. Legueult, sculptor, late pupil of the École des Beaux-Arts.——In a few days the new Russian Church is to be opened at Biarritz.——In the course of some excavating works in the Rue de Griffes, at Nimes (Gard), the old "Porte des Eaux" has been discovered in the Roman wall which surrounds the town,—the waters of the town and fountain passed through this door and joined the river Vistre. The door, which is much damaged, is still an interesting archæological curiosity; it has two openings 4 mètres wide. The courses are in great blocks of cut stone. There are two arches which rest on a centre pier. The door is to be preserved in the museum at Nimes.——The death is announced at Auzay (Vendée) of M. Émile Sabourand, architect, aged fifty-five. He was a late pupil of the first class of the École des Beaux-Arts. M. Sabourand had worked under M. Duc, in the Palais de Justice, and also with M. Questel, when this architect was restoring the golden gallery at the Hôtel de la Banque de France. He had been member of the central Society of Architects since 1882.——The Congress of the Sociétés Savants is to be opened at the Sorbonne on April 4, 1893. ——The sudden death is announced of M. Cendre, Inspector-General of Ponts et Chaussées, and Director of the State Railways. M. Cendre, who died in Russia, was only fifty years old. He had gone there to represent the French companies at the International Railway Congress.

MISCELLANEOUS.

CIVIL AND MECHANICAL ENGINEERS' SOCIETY.—This society visited on Tuesday last the New Cold Meat Store of Messrs. Nelson Brothers, at Nelson's Wharf, Lambeth. The store is said to be the largest in the world, being capable of holding 270,000 sheep; it was designed by Sir Frederick Bramwell and Mr. H. Graham Harris. It may roughly be described as a brick box 150 ft. long by 150 ft. wide, and 40 ft. deep, being buried in the ground to the extent of 20 ft.; the only openings into it are at the top. Inside this brick box is a wooden one disconnected from the brick walls, and having six wooden floors in it, these being so constructed that cold air can circulate through them. In order that the unloading of the barges which receive the meat from the ships in the docks below bridge may be expedited as much as possible, a 100 ft. jetty has been constructed, which with a private dock inside the wharf, enable eleven barges to be unloaded at one time. Ample provision has been made for the distribution of the meat for the purposes of consumption; as many as twenty vans can be loaded at one time. The cooling is effected by a 65 ton De la Vergne engine and apparatus, and by one of Messrs. Haslam's Cold Air Machines capable of circulating 212,000 cubic feet of air per hour at a temperature of 60 deg. to 100 deg. below zero. The store is lighted by electricity and has all the modern lifting and necessary appliances.

THE ENGLISH IRON TRADE.—There is little to lighten the gloom prevailing in the English iron market, and the prospects of improved trade seem far distant. On the Glasgow warrant market business is confined to jobbing transactions in Scotch warrants. The Cleveland pig-iron market, which lately has shown an improved tendency, has experienced a check, and prices exhibit a slight decline. The Cleveland ironmasters' returns for August record the largest production of pig-iron of any month this year, viz., 213,000 tons, 111,000 tons of which were hematite and basic, and the remainder Cleveland iron. The whole stock of iron is now 46,000 tons, a decrease of nearly 5,000 tons upon July. This is a smaller stock than during the stoppage produced by the Durham strike, before which the stock stood at 286,000 tons. With the increase in production, and a reduction in demand, stocks must soon go on again accumulating. There are eighty-six furnaces in blast, three more than before the Durham strike. In all the other crude-iron centres little change is recorded. The manufactured-iron trade is practically lifeless, and the tinplate branch is depressed. In the steel trade very few transactions are recorded, and in some cases prices are considerably undercut. Shipbuilding generally is dull, although a few new orders are reported in the Scotch district, where the largest vessel, with the exception of the *Great Eastern*, was launched yesterday (Thursday). Engineers and ironfounders continue quiet. The coal trade is slack.—*Iron*.

CREMATION.—We understand that in view of the probable great advancement of the practice of cremation in England the General Cemetery Company have erected a Columbarium for the reception of cinerary urns at their cemetery at Kensal-green. The structure is placed in the monumental chambers, and contains accommodation for forty-two urns. There are three tiers of compartments on each of the four sides, and each one is enclosed by a metal lever-locked door filled with plate glass. The fronts are in Caen stone, with panelled pilasters at each angle, and moulded base and cornice; the shafts between the compartments are of polished Sienna marble, and the panels in the pilasters filled with polished rouge Royale marble. The Columbarium has been built by Mr. E. M. Lander, of Kensal-green, from the designs of the architect, Mr. Robert Willey.

CONSISTORY COURT OF LONDON.—On August 29 Dr. Tristram, Q.C., Chancellor of the Diocese, granted an amending order in respect of the Bancroft tomb, on the floor of St. Helen's, Bishopsgate, which church is now being extensively restored under the direction of Mr. J. L. Pearson, R.A. Francis Bancroft, *obiit* 1727, caused that obstructive and tasteless structure to be erected in 1723, charging the Drapers' Company with its custody, and stipulating that they should once a year visit the tomb and inspect his embalmed remains. In December last year a faculty was given for the making of a chamber or vault underneath the tomb, and the setting up of a memorial tablet on the adjacent wall of the Nuns' Aisle. The later order, obtained at the Company's instance, provides for the construction of a brick vault to contain the coffin, and the substitution of an inscribed slab or other suitable memorial instead of the present tomb. Bancroft, who enjoyed no very good reputation, left most of his property in trust to the Drapers' Company as endowment for their schools and almshouses in the Mile End-road, removed a few years ago for the building of the People's Palace. On the 2nd instant the Chancellor issued faculties for the construction of transformer chambers, for use of the City of London Electric Lighting Company, in the churchyards of St. Benet Fink and St. Nicholas Cole Abbey, no other positions being available for their requirements. The Company are under a contract to light the City streets for an annual payment by the Corporation of 20,000*l*., upon completing their system. They want a site within fifty yards of the site of St. Benet Fink in order to supply the 7,000 incandescent lights,—including 1,200 in the Bank of England,—already asked for; and another to meet an estimated demand for from 20,000 to 25,000 lights in the Queen Victoria and Upper Thames-streets district. The Court imposed the customary conditions as to re-interment in consecrated ground, at Ilford or elsewhere, of any human remains disturbed by the Company's operations, and the Company undertake to contribute 30*l*. and 25*l*. towards the church services respectively. By a local Act, 5 & 6 Vict., cap. 101, the church and churchyard of St. Benet Fink were vested in the Mayor and Corporation for an extension of approaches to the Royal Exchange. It stood in Threadneedle-street, next to the block comprising the Bank of Australasia, at the corner of Finch-lane, built after P. C. Hardwick's designs, in 1854-5, upon ground belonging to, we believe, St. Thomas's Hospital. St. Benet Fink was built by Wren, at a cost of 4,129*l*. 16s. 10d. It is thus described in the late George Godwin's "Churches of London" (1839):—"The arrangement of the interior of the building is peculiar. The external walls describe a decagon, within which six composite columns form a parallel aisle in the centre, and support a small elliptical cupola. An ill-proportioned entablature proceeding from the side walls is received on each column. The spaces between the columns are arched, as are the east and west ends of the aisle, thus forming a series of arched recesses round the building, which have a singular effect. It has been pointed out as a fine specimen of its author's genius, but, excepting so far as regards the adaptation of means to circumstances, we can discover little genius in it. As a whole, the composition is crowded and confused, and in the details there is nothing to admire." The tower at the west rose to a total height of 101 ft.; it carried a belfry with large oval openings, a leaden swelling cupola, and a lantern. The parish is now united with that of St. Peter-le-Poor, Broad-street.

NEW ESPLANADES AT WALTON-ON-THE-NAZE.—The new esplanades and sea-defence works at Walton-on-the-Naze were recently "publicly opened" by the local Member of Parliament. The frontage dealt with is some three-quarters of a mile in length. According to the *Essex Standard*, to fill up the gulfs and chasms in the frontage would have entailed a heavy outlay. It was therefore decided to come into them and put the works in curving forms in front, to give a gentle access to the works at both ends, and to form a continuous promenade from the pier approach to Raglan House, with continuations at either end, and in front of the railway-station to put a sea-wall with promenades and esplanades with protecting stone and burr groynes. In the centre of the town a smaller groyne has been completed, with a broad slipway to the beach. The sea-wall, to hold up the Marine-roadway, is some 27 ft. high in the centre part from the foundations to the top. The promenade is about 21 ft. wide, and in front of this is a sloping wall, up and down which the sea runs freely. Besides these works, a great deal has been done to strengthen the walls opposite Pier Crescent and Raglan House, buttresses having been built, slopings filled in, and aprons to the footings repaired. The new defences at the foot of South Cliffs comprise sloping stone sea-walls 580 ft. run, and an extension in burr walling of 350 ft., with other work at the end to complete this, making together 950 ft. of new sea defences on this side of the town. On the top of this is a promenade in two sections of 9 ft. wide and 12 ft. wide on a slope, so that the seas that go upon it in rough weather shall easily run off. A roadway is partly made between the top of this and the cliffs. At Burnt House the groyne has been cut down and made a solid structure, and at the boundary of Walton a much stronger groyne has been built, 360 ft. long. Mr. S. B. Goslin, of Walton, was the engineer.

FIREPROOF CONSTRUCTION.—We are informed that some experiments in a new style of fireproof construction were recently made at the premises of Stuart's Granolithic Paving Company, Limited, Limehouse, under the direction of Mr. P. Stuart, the Managing Director of the Company, Mr. Thomas, of Westminster, being the referee. Mr. Stuart explained that the granolithic fireproof flooring, which was to be tested, was similar to that of which granolithic paving is composed. None of the slabs to be tested would be thicker than 2 in., and it was claimed that with this new stone they could span 16 ft. without the aid of iron beams or girders. The tests were then proceeded with, and, we are informed, among the results obtained were the following:—One granolithic slab, 5 ft. 8 in. by 7 ft., with a rise at the centre of 5½ in. supported between two joists, was loaded with 8 tons, which remained thereon until twelve o'clock the following day, when additional weight was added, bringing the total load to 15½ tons. This load was left for two days longer, but the stone did not break, crack, or show any other sign of failure. With a load of 8 tons a deflection of half an inch was produced, and with a maximum load of 15½ tons the deflection was increased to ⅝ in. Then a second slab, flat, was fixed under the same conditions. It carried 12 tons, or a load equal to 6 tons 7 cwt. per square foot. A third slab of the same dimensions, supported on all sides by wooden joists, was next tested by a falling load. A piece of granolithic weighing 2 cwt. was dropped from a height of 7 ft., producing an impact of 2 tons 2½ cwt. In the first fall the weight did not fall quite vertically, one corner striking the slab, which only produced a small triangular hole, but without causing any crack. A second blow of the same weight struck it fairly close to where the first had been delivered; this merely enlarged the hole, and no crack was visible. A third blow directed to a different point of the slab knocked a piece off, but still failed to produce a crack or breakage. After the experiment a careful examination failed to show any permanent set in the slab. By way of contrast, a slab of York-landing, 3½ in. thick, was placed with bearings on two sides, but it broke with a load of 3 tons 2 cwt., or a load equal to 1 ton 7 cwt. per square foot. A granolithic lintel 9 ft. long and 6 in. deep was then tested, and it carried a load of 3½ tons.

THE METROPOLITAN RAILWAY EXTENSION TO AYLESBURY.—The extension of the Metropolitan Railway Company's system to Aylesbury was formally opened on the 1st inst. to public traffic. The extension starts from Chalfont-road, the junction of the Chesham line, passes over the intervening undulations into the Amersham Valley, and through the Shardloes estate to Great Missenden, where a station has been built. Thence the line traverses the Valley of Wendover, goes through a deep cutting, and over a flat country through Stoke Mandeville to Aylesbury. The total cost of this extension has mounted up to about 350,000*l*., or 22,000*l*. a mile. The whole of the skylights over platforms, goods stations, &c., have been glazed on Messrs. W. E. Rendle & Co.'s patent system. The line has been constructed from the plans of Mr. Gates by Mr. J. T. Firbank. At Aylesbury the extension comes into connexion with the Aylesbury and Buckingham line, which extends northwards to Quainton-road, at which point the junction with the new line of the Manchester, Sheffield, and Lincolnshire Railway will be made.

COMPETITIONS, CONTRACTS, AND PUBLIC APPOINTMENT.

COMPETITIONS.

Nature of Work.	By whom Advertised.	Premium.	Designs to be delivered.
*Local Board Room, Offices, &c.	Shepton Mallet L. B.	15*l.* and 5*l.*	Oct. 1
*Public Offices	Ilford Local Board	50 and 25 Guineas	Oct. 22
*Technical Schools	Swindon Local Board	...	Dec. 1

CONTRACTS.

Nature of Work or Materials.	By whom Required.	Architect, Surveyor, or Engineer.	Tenders to be delivered.
*50 Cottages, Troedyrhiw	Troedyrhiw Build. Club	T. C. Wakeling	Sept. 13
Pipe Sewer	Kirbymoorside R.S.A.	Brundell, Simmons, & Brundell	do.
Alterations, &c. Methodist Chapel, Llandilo	...	J. W Jones	do.
*Roadmaking Works	Barking Town L. B.	*Official*	do.
*Buildings and Works at Depot	Lewisham Bd. of Wks	do.	do.
*Roadmaking and Paving Works	do.	do.	do.
*Repairs to Heater	Wandsworth, &c. Union	do.	Sept. 14
*Drainage Works, Northern Fever Hosp.	Met. Asylums Board	do.	do.
*Making-up and Paving Road	Fulham Vestry	W. Sykes	do.
Alterations, Workmen's Rest, North Quay Abattoir	Plymouth Corp.	G. Bellamy	do.
Sewerage Works, Anfield Plain	Lanchester U.R.S.A.	*Official*	do.
Villa Residence, Stotfield, Elgin, N.B.	...	A. & W. Reid	do.
Sea Wall	Teignmouth Loc. Bd.	W. Curry	Sept. 15
Wrought-iron Castings, Liskeard	Phœnix United Mines	...	do.
Road and Fence, Cymmer, Rhondda	Ystradyfodwg Loc. Bd.	J. W. Jones	do.
Well, Bore-hole, &c.	Norton Local Board	*Official*	do.
*School, Port Talbot	The Building Com.	T. P. Martin	Sept. 16
*Villa Almshouses, Snodland, Kent	...	G. R. Cobham	Sept. 17
Sewerage Works	Nairn Union Poorhouse Board	Gordon & McBey	do.
Eleven Houses, Nelson Village, South Wales	Royal Oak Building Club	...	Sept. 19
*Brick and Pipe Sewers	St. Pancras Vestry	W. N. Blair	do.
Extension of Schools, Buckfastleigh, Devon	School Board	*Official*	do.
*Repair of Private Roads	Croydon Council	do.	Sept. 20

CONTRACTS.—*Continued.*

Nature of Work or Materials.	By whom Required.	Architect, Surveyor, or Engineer.	Tenders to be delivered.
*Alteration to House at Cemetery, Ilford	Commrs. of Sewers	*Official*	Sept. 20
*Broken Granite	East Ham Local Bd.	—Savage	do.
*Brick and Pipe Sewers, &c. &c.	Skipton U.R.S.A.	A. E. Preston	Sept. 22
Sewage Disposal Works, &c. (Contract No. 1)	do.	do.	do.
*Paving Works	Walthamstow Loc. B.	G. W. Holmes	Sept. 23
*Granite	Bournemouth T. C.	F. W. Lacey	Sept. 26
*Chemical Assistant's House, Barking	London County Council	*Official*	Sept. 27
*Block of Dwellings, Poplar	do.	do.	do.
*Public Baths	Woolwich Local Board	H. H. Church	do.
*Oak Fencing and Gates	West Ham Council	Lewis Angell	do.
*Works of Main Drainage	Belfast Corporation	*Official*	Oct. 4
*Additional Storey, G. P. O. East	Com. of H. M. Works	do.	do.
*Central Station, Bristol	Bristol U.S.A.	H. Williams	Oct. 10
*Enlargement of Post Office, Eyde	Com. of H. M. Works	*Official*	Oct. 13
Steel Rails (175,000 tons)	New South Wales Gov.	do.	Dec.
*Block of Buildings, Clacton-on-Sea	Town Hall Building Co. Lim.	J. W. Chapman	No
Stores, Albion-street, Leeds	Leeds Indus. Co-op. Soc.	*Official*	do.
Two Shops and Warehouses, Cardiff	...	B. Tomlinson	do.
Alterations, &c. to Vicarage, near Pontypool	...	Halliday & Anderson	do.
Chimney Stack, near Aberbeeg, South Wales	John Lancaster & Co. Lim.	...	do.
Additions, &c. to "Princess Alice" Hotel, Middlesbrough	...	B. F. Simpson	do.
School Buildings	West Hartlepool S. B.	J. P. Pritchett	do.
"Rowers' Arms Inn," Dunston-on-Tyne	Newcastle Breweries, Lim.	S. Oswald & Son	do.
Three Houses, Hall-lane, Wortley, Leeds	...	J. Charles & Sons	do.
Heating School Building, Batley, Leeds	...	H. B. Buckley	do.

PUBLIC APPOINTMENT.

Nature of Appointment.	By whom Advertised.	Salary.	Applications to be in.
*Surveyor and Inspector of Nuisances	Bexhill Local Board	175*l.*	Sept. 26

Those marked with an Asterisk (*) are advertised in this Number. *Competitions, p.* iv. *Contracts, pp.* iv., vi., *&* viii. *Public Appointment, p.* xviii.

AUSTRALIAN CEMENT.—The Government having announced their intention to use only locally-manufactured Portland cement in connexion with the projected Happy Valley Reservoir works, the hydraulic engineer (Mr. Bayer, C.E.) tested the cement of the South Australian Portland Cement Company at the Waterworks Yard, Thebarton. For this purpose he selected some briquettes made nine months ago, the official test of which is 550 lb. to the square inch. The average result was 747 lb. tensile strain to the square inch. From the next lot of briquettes, made a few days later, the average result was a tensile strain of 822 lb., and one of the briquettes could not be broken at all by any strain to which it could be subjected by the machine, the superincumbent column of mercury being lifted up and scattered about over the counter at a pressure of over 950 lb. to the inch—the greatest pressure on record. The third lot of testings averaged over 870 lb. to the square inch. The hydraulic engineer expressed his satisfaction at a result which was quite unparalleled in the recorded tests of the department.—*South Australian Register.*

APPOINTMENT.—At a meeting of the Board of Management of the Midland Deaf and Dumb Institution, Derby, held on the 5th inst., the Mayor of Derby in the chair, Mr. W. J. Phillips was appointed clerk of the works for the new Institution, now in course of erection in Friar-gate, Derby, at a cost of over 11,000*l.*

GLASGOW ARCHITECTURAL ASSOCIATION.—The usual monthly meeting of this Association was held in the rooms, 114, West Campbell-street, on Tuesday evening, the President in the chair. After the ordinary business was transacted, Mr. Chas. R. McIntosh read a paper descriptive of his tour in Italy, while he was the recipient of the Alexander Thomson Travelling Studentship. His route took in, amongst other places, Naples, Palermo, Rome, Orvieto, Siena, Florence, Pisa, Lucca, Bologna, Ravenna, Venice, Padua, Vicenza, Verona, Milan, and Pavia, the principal buildings in each of which he noted and criticised. The paper was illustrated by a large collection of pencil and water-colour sketches, and some good photographs.

LEGAL.

INSANITARY CONDITIONS IN "MODEL" DWELLINGS:

THE VESTRY OF SHOREDITCH *v.* PILBROW.

THIS important case was recently decided, after being five times before the Magistrate at Worship-street Police-court. It arose on a summons taken out by the Vestry of St. Leonard, Shoreditch, against a Mr. Pilbrow, to recover the sum of 209*l.* 7s. 6d., the cost of work done by the Vestry at a block of "model" dwellings known as Norfolk-buildings, belonging to Mr. Pilbrow.

A *résumé* of the case, given in the *Hackney Mercury*, shows that on October 15, 1891, the Chief Sanitary Inspector, Mr. Alexander, discovered that a drain under a bedroom was opened, and the space under the floor flooded with sewage, and it was alleged that this had happened several times before, and was not made known to the inspector; it was also alleged that similar nuisances had occurred in several other tenements. These facts being reported to the Vestry, an order was made requiring the owner to reconstruct the drain; some difficulty appears to have arisen in serving the notice upon Mr. Pilbrow personally, as required by the Act. This was, however, done on November 18. The nuisance referred to, having been temporarily abated, on receipt of the notice, it further appears that Mr. Pilbrow instructed a surveyor to make plans and specification, but negotiations for the execution of the works were unduly protracted, and nothing was done until the Vestry entered on February 8, 1892.

Mr. Rose (the magistrate), in giving judgment, said Mr. Pilbrow had set up the various pleas that he was not the owner, that the work done was altogether unnecessary, and that work was done that was not specified in the notices. The case of the Vestry set forth that on inspection they found the drains in bad order, and they served notice in November, 1891, upon Mr. Pilbrow in person, requiring him to amend and reconstruct the defective drains, and in February, 1892, nothing having been done by Mr. Pilbrow to amend the conditions complained of, the Vestry entered upon the premises under the power given by Sec. 85 of the Metropolis Local Management Act, and work was done to the value of 209*l.* 7s. 6d., which sum the Vestry had paid, and now sought to recover. It was alleged on behalf of Mr. Pilbrow that this sum was excessive, and that the Vestry should have contracted for the execution of the work. As to these contentions, he was of opinion that the bill was not excessive, and that the Vestry was not obliged to contract in order to get the work done cheaply, and perhaps nastily. As to the inspection chambers being constructed that were not specified, he found that the notice required all necessary works to be done, and it was a matter of common knowledge that inspection chambers were a necessity of modern drainage. Mr. Pilbrow had also set up the objection that he was not the owner; but if he really were not the owner, nothing would have been more easy of proof, and no such proof had been adduced. He was therefore of opinion that Mr. Pilbrow was the owner. It was given in evidence that since the completion of the work defects had been found; well, probably no sanitary arrangements could long be retained in perfect condition in the buildings in question, owing to the habits of the tenants. Then it was contended that the drains had always been in good order, and that the works required by the Vestry's notice were unnecessary; if that were a valid objection, Mr. Pilbrow had his remedy; he could have appealed to the London County Council under Sec. 211 of the Metropolis Local Management Act against the notice of the Vestry, but that he had not done: he allowed the work to be finished, and now resisted payment. The Vestry had done the work and paid the money, and he could not believe that any Local Authority had any interest in doing work that was not necessary, and as he believed Mr. Pilbrow to be the owner, he gave judgment for the Vestry for the sum claimed, 209*l.* 7s. 6d., and 20*l.* costs.

[This report was accidentally overlooked last week. We give it now on account of the importance of the case.]

ANCIENT LIGHTS.

JOHN G. JOICEY *v.* NORTH-EASTERN RAILWAY COMPANY.

THIS arbitration case was held in Newcastle-on-Tyne on the 3rd and 4th ult., the umpire being Mr. Robt. Vigers, of London, the arbitrators being Professor Banister Fletcher and Mr. Thos. Gow. For the claimant there appeared as counsel Mr. Cyril Dodd, Q.C., M.P., as solicitor, Mr. C. E. Cadle (representing Messrs. J. G. Wilson, Ornsby, & Cadle, of Durham), and as expert witnesses—Mr. James W. Frazer, A.R.I.B.A., Mr. E. E. Clephan, Mr. John Ferguson, and Mr. W. S. Armstrong, of Newcastle. For the Railway Company there appeared as counsel, Mr. Fletcher Moulton, Q.C., with, as junior counsel, Mr. Hugh Boyd; as solicitor Mr. A. Kaye Butterworth, the Company's own solicitor; and as expert witnesses—Mr. Chatfeild Clarke, F.R.I.B.A., of London, Mr. Henry Carrick, Mr. J. Potts, and Mr. Geo. Irving, of Newcastle. This was a case in which the claimant's property, containing the ancient lights, is situated in Pottery-lane, Newcastle, having a 30-ft. street between it and the railway company's Forth Goods Station. The railway company formerly had a wall opposite about 17 ft. 9 in. high, and in extending their goods station under statutory powers they pulled down this wall and erected their station to a height of about 52 ft. The claimant claimed that this addition seriously affected the light to his premises. It was proved that the workmen engaged in the premises (which are occupied by an engineering firm) felt the loss of light to such a large extent that they could not work with comfort without the aid of artificial light, and then they were unable to execute the same quantity of work as executed before the obstruction was there. The railway company called their witnesses to prove that with an alteration to the front of the building, which is 125 ft. long, by setting back the first-floor wall 3 ft., and inserting skylights to light the ground-floor, all the light that was necessary could thus be obtained, and that the cost of such alterations would only be about 200*l.* It was pointed out by the claimant that that amount was inadequate, as the same amount of floor-space would have to be retained, therefore the back wall would have to be set back 3 ft., and the roof and floors taken down and replaced, perhaps with new materials. This alteration would, it was argued by claimant, cost at least about 2,500*l.*, and then not give the same light as before enjoyed. The claimant claimed 5,460*l.* on the ground that, having prepared a scheme for the improvement of the property in the form of warehouses, offices, and sample-rooms, he was prevented from carrying it out, as the risk would be too great, seeing that the majority of the light which he required for the offices and sample-rooms would be taken away, and that was the amount he had lost through having to abandon the scheme. The railway company argued that the scheme would not be interfered with to the extent that claimant set forth. The award was taken up by the railway company on the 26th ult., and was found to amount to 1,218*l.*

MEETINGS.

MONDAY, SEPTEMBER 12.

Clerks of Works' Association (Carpenters' Hall).—Monthly Meeting. 8 p.m.

SATURDAY, SEPTEMBER 17.

Glasgow Architectural Association.—Visit to Bardowie Castle and Mugdock Castle.

RECENT PATENTS:

ABSTRACTS OF SPECIFICATIONS.

16,375.—CEMENT: *W. R. Taylor.*—This patent relates to improvements in, and apparatus for, the burning of cement-making materials, lime, chalk, and the like. It consists essentially of the provision, in connexion with the furnace of the kiln, of a duplex arrangement of flues, provided with dampers by which each flue can be opened and closed as required.

17,336.—VENTILATORS: *F. W. Barker.*—This invention relates to apparatuses utilising the powers of wind and air currents for the purposes of ventilation. It consists mainly of specially-formed vertical extracting tubes, or their equivalents, formed into groups in various ways, and each having a long, narrow vertical outlet opening. These openings have at their edges projecting lips, which may be formed by curving the edges outward, or by means of vertical plates projecting outward from, and at a suitable angle to, the surface of the tube, formed so as to utilise the power of wind or air currents passing across the same. The vertical plates forming these projecting lips may also project into the tube, so that any rain, &c., attempting to enter the vertical openings of the tube at an angle from a side direction is caught by the plate against which it impinges.

20,467.—WATER-CLOSETS: *J. Kirkman.*—This invention relates to that description of water-closets wherein the waste water from the sink is made use of to flush the pan of the water-closet. The inventor makes the pan of the water-closet preferably of earthenware, and of a cylindrical form, open at the top and closed at the bottom, with the exception of an opening to which the pipe leading to the sewer is attached. Connected to one side of this is fixed a cistern, preferably of the same material, and of about the same diameter, and of a convenient height, so as to form a kind of twin-cylinder. The bottom of the cistern is higher than that of the pan, and an opening is made from one to the other. This opening in the cistern is closed by a valve, the waste water which flows from the sink being conducted by means of a suitable pipe into the cistern, where it accumulates. Means are provided for opening the valve by pulling a wire or chain when the pan is required to be flushed, and on thus opening the valve the whole contents of the cistern are discharged through the pan. An overflow opening is also provided.

11,490.—DOOR BOLTS: *W. J. Steel and H. C. Braham.*—Relates to an improved construction of resistable bolt, whereby when the bolt has been shot and fastened it shall be impossible to tamper with it from the outside. The bolt proper is lodged in a mortice formed in the lock style of the door, or in a casing, lining, or box fitting into the mortice. The bolt is furnished with a thumb-piece or knob, which projects through a slot in the lock style of the door, and by means of which the bolt is shot or thrown or is withdrawn. To retain the bolt in its shot position a stop-block or wedge is employed, so formed as to fit snugly into the before-mentioned slot, and lie behind the thumb-piece or knob. When the stop-block is in place within the slot any attempt to withdraw the bolt will be quite futile, as the stop-block offers a rigid resistance to any backward movement of the bolt. A hinged flap is provided for securing the stop-block in place.

11,633.—CLAMPING DEVICE: *J. A. Findlay.*—The object of this invention is to provide a clamping or gripping device, which, while allowing the string or cord to be easily and speedily tightened, slackened, or released when desired, will be capable of holding it very securely even when subjected to considerable tension, in such a manner that increasing the tension will increase the tenacity with which the string or cord is held. This clamping device is peculiarly adapted for securing the strings of waggon sheets, or the like.

12,096.—BUILDING STONE CONNEXION: *E. Reiss.*—This invention relates to the means for joining or securing together plates or slabs of natural or artificial stone to form walls or ceilings. It consists in providing adjoining slabs or plates with slots placed in pairs exactly opposite each other, so as to form grooves or slots across the joints, and inserting into these grooves or slots strips of sheet metal, the extremities of which are bent down either before or after insertion, so as to prevent the accidental displacement of the strips and the plates.

NEW APPLICATIONS FOR LETTERS PATENT.

August 22.—15,105, J. Lohmer, Flue Connector for Chimney-shafts.

August 23.—15,139, T. Stansfield, Earthenware Basins of Water-closets, Bath-pans, &c.—15,141, J. Andrew, Reciprocating Saws.—15,142, G. Staite, Raising, Lowering, and Fastening Window-sashes.—15,147, J. Keseling and C. Fuchs, junior, Artificial Stone.—15,165, W. Wood and H. Hobden, Disinfecting Water-closets, Drains, Sewers, &c.—15,174, R. Haddan, Water-closets.

August 24.—15,209, W. Brooker, Door Fastenings.—15,212, H. Lightfoot and O. Wright, Flushing Water-closets.—15,214, J. McGraw, Chimney-tops.—15,221, J. Sellars, Portland Cement, or equivalent Cement Mouldings, Castings, Blocks, &c.—15,241, J. Townsend and W. Gritten, Preventing Waste of Water in Water-closets and other places.

August 25.—15,264, R. Stevens, Spokeshaves for Working Wood.—15,279, W. Richardson, Draught Excluder for Doors.—15,299, J. Goriup, Electric Apparatus for Operating the Fastening and Unfastening of Doors.

August 26.—15,336, F. Belville and E. O'Neill, Cowls.—15,340, J. I. & J. Vicars, Bakers' Ovens.—15,364, W. & P. Wheeler, Volume Fans or Air Propellers for Extracting Vitiated Air and Injecting Fresh Air into Buildings, &c.—15,389, The Bostwick Gate and Shutter Co., Ltd., and W. Williamson, Folding or Collapsible Gates, Shutters, Window-guards, &c.

August 27.—15,434, H. Laurence, Simple Window-sash Reversing Invention.

PROVISIONAL SPECIFICATIONS ACCEPTED.

9,093, W. Allen, Sash-fastener.—11,009, W. Steele, Apparatus for securing Doors in one direction.—11,360, H. Ball, Self-locking Window-sash, Slide, and Fastener. 12,416, R. Fox, Waste-preventers or Flushing Cisterns. 12,583, J. Hayhurst, Spirit Levels.—12,817, T. Ely, Waste-water Preventer.—13,182, P. Wilson, Automatic Drip-flush and Stop-tap.—13,596, T. Bird, Attaching Door-knobs, Handles, and the like to their Spindles. Applicable also to other purposes.—13,612, T. Burton and A. Louis, Drain-pipe Joint.—13,620, W. Bramley, Planes.—13,670, G. Greenaway, Mitre Cramps.—14,132, W. Bramley, Detachable Handles for Saws.—14,140, L. Hull, Cocks for Water-pipes.

COMPLETE SPECIFICATIONS ACCEPTED.

(Open to Opposition for Two Months.)

11,603, J. Wild, Band-sawing Machines.—18,047, J. Dean and G. Smith, Water-closets.—18,311, L. Seagers, Window-sashes, Doors, &c.—29,740, J. Blakesley, Fire-proof Floors, Roofs, Girders, Joists, &c.—13,583, C. Lewy, Securing Glass-plates to Walls, Ceilings, &c.—13,644, H. Lake, Metal-sashes.

SOME RECENT SALES OF PROPERTY:

ESTATE EXCHANGE REPORT.

AUGUST 30.—By *T. Wakefield*: 49, Foxberry-rd., Brockley, u.t. 80 yrs., g.r. 4*l*., r. 26*l*., 230*l*.; 5, 6, and 7, Elizabeth-ter., Peckham, u.t. 78 yrs., g.r. 15*l*. 15s., r. 78*l*., 500*l*.; 51, Winfrith-rd., Earlsfield, u.t. 92 yrs., g.r. 5*l*. 5s., r. 31*l*. 4s., 290*l*.; 1 and 2, Prospect-pl., Barking, f. 575*l*.; a plot of freehold building land, Ripple-rd., 24*l*.—By *Boyton & Pegram*: 190, North End-rd., Fulham, f., r. 39*l*., 405*l*.—By *A. Savill & Son*: A freehold cottage, Riseley, Beds., r. 5*l*., 55*l*.

AUGUST 31.—By *Inman & Co.*: "Magnet Villa," Dudding-lane, Willesden, u.t. 93 yrs., g.r. 8*l*., r. 30*l*., 270*l*.; 10, Church-lane, u.t. 84 yrs., g.r. 5*l*., r. 26*l*., 145*l*.—By *Ellis, Morris, & Co.*: 78, Lillington-st., Pimlico, u.t. 53 yrs., g.r. 7*l*. r. 40*l*., 360*l*.

SEPTEMBER 1.—By *Newbon & Co.*: 4 and 6, Milford-ter., Tottenham, u.t. 85 yrs., g.r. 11*l*., r. 52*l*., 510*l*.; 270*l*.; 10, Baker-st.; 24 and 26, Digby-walk; and 37 and 39, Digby-st., Bethnal-green, f. r. 87*l*. 2s., 700*l*.; 6 and 6A, Cross-st., Islington, u.t. 18 yrs., g.r. 20*l*., 110*l*.; 108 and 110, John-st., Barnsbury, u.t. 57 yrs., g.r. 14*l*. r. 90*l*., 710*l*.; 55, 57, and 59, Gillespie-rd., Highbury, u.t. 84 yrs., g.r. 16*l*. 10s., r. 109*l* 4s., 625*l*.—By *A. J. Sheffield*: 5, 6, and 7, Lodore-st., Poplar, f., r. 55*l*. 18s., 520*l*.; 239, East India-rd., f., 600*l*.

[*Contractions used in these lists.*—F.g.r. for freehold ground-rent; l.g.r. for leasehold ground-rent; i.g.r. for improved ground-rent; g r. for ground-rent; r. for rent; f. for freehold; c. for copyhold: l. for leasehold; e.r. for estimated rental; u.t. for unexpired term; p.a. for per annum; yrs. for years; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; yd. for yard, &c.]

PRICES CURRENT OF MATERIALS.

TIMBER.		
Greenheart, B.G. ton	9 0 0	0 0 0
Teak, E.I.. load	9 10 0	15 0 0
Sequoia, U.S. ft. cu.	2/4	3/0
Ash, Canada load	2 10 0	4 0 0
Birch, do.	3 5 0	4 10 0
Elm, do.	3 10 0	4 15 0
Fir, Dantzic, &c.	1 10 0	3 10 0
Oak, do.	3 0 0	5 5 0
Canada.....	5 10 0	7 0 0
Pine, Canada red	2 10 0	3 10 0
Do, yellow	2 10 0	3 0 0
Lath, D'ntsic, fath	5 0 0	8 0 0
St. Petersburg	5 0 0	7 0 0
Deals, Finland		
2nd & 1st std 100	7 10 0	9 10 0
Do, 4th & 3rd..	7 0 0	8 0 0
Do. Riga	6 10 0	8 0 0
St. Petersburg, 1st yellow ..	10 10 0	14 10 0
Do. 2nd yellow	8 0 0	9 10 0
Do. white	7 10 0	10 0 0
Swedish	7 0 0	15 10 0
White Sea	8 0 0	17 0 0
Canada, Pine 1st	20 0 0	26 0 0
Do. do. 2nd....	14 10 0	16 0 0
Do. do. 3rd, &c.	8 0 0	10 0 0
Do. Spruce. 1st	8 10 0	11 0 0
Do. do. 3rd & 2nd.....	6 15 0	8 0 0
New Brunswick	7 0 0	7 10 0
Battens, all kinds	3 10 0	15 10 0
Flooring Boards, sq., 1 in. prep. 1st	0 3 0	0 13 6
Do. 2nd.....	0 7 0	0 10 6
Other qualities	0 3 6	0 8 0
Cedar, Cuba ..ft.	/3½	/4½
Honduras, &c.	/3½	/4
Mahogany, Cuba.	/4½	/6½
St. Domingo, cargo av	/4½	2/0
Mexican do. do	/4	/5
Tobasco do. do	/5½	/7
Honduras do..	/5½	/6½
Box, Turkey ton	4/0/0	13/0/0
Rose, Rio.....	10/0 0	20/0/0
Bahia	9 0 0	18/0/0
Satin, St. Domingo ....ft.	0 0 8	0/1/3
Porto Rico	0/0/8	0/1/6

TIMBER (*continued*).		
Walnut, Italian..	0 0 3½	0'0/7
METALS.		
IRON—Pig, in Scotland .....ton	2/2/2	0/0/0
Bar, Welsh, in London.....	5/17/6	6/0/0
Do. do. at works in Wales	5/7/6	5/10/0
Do. Staffordshire, in London	6 5/0	6 15 0
COPPER—British, cake and ingot	47 0 0	47/10 0
Best selected ..	48/0/0	48/10/0
Sheets, strong..	56/0/0	0/0/0
Chili, bars	44/6/3	44/13 9
YELLOW METAL lb.	0/0/4½	0/0/5½
LEAD—Pig, Spanish....ton	10/1/3	10/3/9
English, com. brands	10/7/6	10/10/0
Sheet, English, 3 lbs. per sq. ft. and upwards ..	12/5/0	0 0 0
Pipe	12/15/0	0/0.0
ZINC—English sheet .....ton	25/0/0	0/0.0
Vieille Montagne.....	25/10/0	0 0.0
TIN—Straits	92/17/6	93.7/6
Australian	93/7.6	93/17/6
English Ingots.	96/0 0	96/10 0
Banca	94/10/0	0/0/0
Billiton	93/10/0	0/0/0
OILS.		
Linseed .....ton	17/15/0	18/0/0
Cocoanut, Cochin	24/10.0	0.0/0
Do. Ceylon	21/10/0	21/15 0
Palm, Lagos	22/10/0	23 0/0
Rapeseed, English pale	24/0.0	24 10/0
Do. brown	22/10/0	0/0.0
Cottonseed ref...	18/0.0	0/0.0
Oleine	20/10/0	21/0/0
Lubricating, U.S.	4/0/0	5/0.0
Do. refined	5/10/0	12/0/0
TAR—Stockholm barrel	0/19/0	0/0/0
Archangel	0/12/6	0/0/0

TENDERS.

[Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than* 12 *noon on Thursdays.*]

AUDENSHAW (Lancs.).—For flagging and kerbing part of Audenshaw-road, for the Audenshaw Local Board. Mr. J. H. Burton, surveyor, Ashton-under-Lyne:—

F. Marland	£380	0	0	Worthington & Pownall	£312 13 11
T. Storer	346	0	0		
A. Boardman	323	3	9	H. Kinder, Hooley Hill (accepted)....	308 9 1
Underwood & Bro.....	321	9	4	J. Brierly	304 4 2½

[Surveyor's estimate, £311. 10s. 9d.]

BARNES.—Accepted for warming the new Church at Barnes:—
John Grundy, London £115 0 0

BIDEFORD (Devon).—For the restoration and refitting of Littleham Church, Bideford, North Devon. Mr. Temple L. Moore, architect, 4, Great Queen-street, Westminster, S.W.:—

	Fabric.	Fittings.	Total.
Stephens, Bastow, & Co. '....	£2,599	£1,299	£3,898
Philips	2,086	1,377	3,461
Longley	2,195	1,244	3,439
Stephens	1,990	1,230	3,220

BURTON-ON-TRENT.—For the erection of a new public-house in Blackpool-street, Burton-on-Trent, for Messrs. Charrington & Co., Brewers, Burton-on-Trent. Mr. R. Stevenson, architect, Imperial-chambers, Burton-on-Trent. Quantities by the architect:—

J. Varlow	£1,420	T. Lowe & Sons, Burton-on-Trent*	£1,350
Geo. Hodges	1,379		
H. Edwards	1,360		

* Accepted.

BURTON-ON-TRENT.—For various works at the Maltings, &c., in Park-street, for Messrs. J. Bell & Co., Brewers. Mr. R. Stevenson, architect, Imperial-chambers, Burton-on-Trent. Quantities by the architect:—

Geo. Hodges	£193 0	Henry Edwards, Burton-on-Trent (accepted)....	£178 0
J. & C. Hunter	186 5		

DAYBROOK (Notts).—For additions to Daybrook Laundry, Daybrook, for Messrs. Robinson Bros. & Co. Mr. W. H. Higginbottom, architect, King John's Chambers, Nottingham. Quantities by architect:—

W. Maule.....	£481 0	H. Vickers.....	£457 0
J. Greaves	467 0	J. Shaw	450 0
E. Hind	459 0	Herring & Jew, Arnold*	420 3
J. Wheatley	457 10		

* Accepted.

HANLEY.—For the erection of a Higher Grade School, Hanley, for the Hanley School Board. Mr. E. E. Scrivener, architect, Howard-place, Hanley. Quantities by architect:—

Treasure & Son	£13,100 0	Cornes	£10,975 0
Lovatt	12,172 0	Hughes	10,921 0
Gray Hill	11,731 0	Warburton	10,600 0
Cooke	11,237 10	Gallimore	10,575 0
Ellis	11,050 0	Godwin, Hanley*	10,550 0

* Accepted.

HIGH BARNET.—For new schools to Congregational Church, Wood-street, High Barnet, N. Mr. George Baines, architect, 4, Great Winchester-street, E.C.:—
S. F. Halliday, Stamford (accepted)..... £970 0 0

HIGH BARNET.—For alterations and additions to the "Red Lion" Hotel, High Barnet, for Mr. Sydney Evershed, M.P., Brewer, Burton-on-Trent. Mr. R. Stevenson, architect, Imperial-chambers, Burton-on-Trent. Quantities by the architect:—

H. J. Marriott.....	£1,550	M. Pearson	£1,325
W. Austin.....	1,452	C. Allen & Son (accepted)	995
J. Baughen	1,375		

LONDON.—For pulling down and rebuilding No. 85, Bishopsgate-street Without, for Mr. Arnold Gabriel. Mr. Lewis Solomon and Mr. E. Carrington Arnold, architects, 55, New Broad-street, E.C.:—

Barlow.....	£2,671	Wm. Downs	£2,484
Holloway Bros.	2,590	Coulsell	2,345
Scott	2,580	Reason	2,275
Patman & Fotheringham .	2,573	Philips C. Norman.....	2,097

LONDON.—For pulling down and rebuilding the "Anchor and Hope," and cottage adjoining, Jamaica-street, Commercial-road, E., for Mr. Ivory. Mr. Reginald A. Rix, architect, 11, Dowgate-hill, E.C. Quantities supplied by Mr. A. W. Wrightson:—

Smith & Sons	£3,177 0 0	Coleman	£3,852 0 0
Downs.....	3,070 0 0	Cocks	2,756 0 0
Holmes	3,001 0 9	Walker Bros.	2,660 0 0
Leeks & Hooker	2,898 0 0		

LONDON.—For stabling in rear of 150 and 152, Church-street, Stoke Newington, for the West Kent Co-operative Dwellings Company, Limited. Mr. Alfred Howard, architect, 6, Martin's-lane, E.C.:—

Stapleton	£332 0	Bull*	£279 10
Neil.....	297 0		

* Accepted.

LONDON.—For alterations to 310 and 311, Smithfield Market, for Mr. Joseph Young. Mr. Alfred Howard, architect:—

Greenwood	£333	Lidstone & Son*.....	257
Woodward	263		

* Accepted.

LONDON.—For alterations and additions to schools to the Shoreditch Tabernacle, Hackney-road, E. Mr. George Baines, architect, 4, Great Winchester-street, E.C.:—

Leslie & Co.	£394 10	S. J. Scott	£285 0
Oswald Craske	315 0	D'Oyly & Co., Limited,	
R. G. Battley	298 10	405, Oxford-street, W.*	263 0
Harris & Wardrop	291 0		

* Accepted.

LONDON.—For alterations and additions to the "Glengall Arms" public-house, Glengall-road, Peckham, S.E., for Mr. G. F. Upward. Mr. Stafford Elsmore, architect, 11, Union-chambers, Old Broad-street, E.C.:—

Shore	£957	Holland.....	£810
Young & Lonsdale	949	Mills	760
Jones	920	Bright (too late).....	745
Parker	845		

LONDON.—For alterations at Green-lanes, for Mr. J. Osborne (first contract). Mr. Wm. West, architect and surveyor, 19, Craven-street, Strand:—

Spencer & Co.	£325	J. & H. Cocks*.....	£245
Williams & Son	308	J. V. Olver	245
Sheffield Bros.....	297		

* Accepted.

LONDON.—For painting "Lion" brew-house, &c., Broad-street Golden-square, W., for Messrs. J. Huggins & Co. Mr. W. West, architect and surveyor, 19, Craven-street, Strand:—

Styles & Son	£500	Scrivener & Co.	£454
Laing & Son.....	479	C. Ansell (accepted)	454

LONDON.—For new cellars, 12, The Pavement, Hampstead, for Mr. J. A. Dowsett. Mr. Wm. West, architect and surveyor, 19, Craven-street, Strand:—

Allen & Sons	£237	Marchant & Hirst (accepted)	£189
Kirby & Chase.....	225	J. & H. Cocks	189

LONDON.—For alterations and additions at the Railway Tavern St. James's-road, Bermondsey, for Reid's Brewery Co., Limited. Mr. M. T. Saunders, architect. No quantities supplied:—

Burman & Sons	£1,695	Wood	£1,280
H. & F. Fearman.....	1,423		

LONDON.—For alterations at 31, Glasshouse-street. Mr. Robert Locke, architect:—

Hilder & Edge.....	£350	Wyatt.....	£343

LONDON.—Accepted for decorative repairs to a house in Upper Wimpole-street, W.:—
N. Lidstone, Finsbury Park..... £652 0 0

LONDON.—Accepted for alterations at "The King Edward VI" Tavern, King Edward-street Islington. Mr. R. A. Lewcock, architect, 88, Bishopsgate-street Within:—

Courtney & Fairbairn, *Contractors*	£755 0 0
Heath, *Pewterer*	112 0 0
Dix, *Gasfitter*.....	138 0 0

LONDON.—Accepted for building a warehouse at the rear of the "Three Nuns" Hotel, Aldgate. Mr. R. A. Lewcock, architect, 88, Bishopsgate-street Within:—
Gill Bros..... £1,800 0 0

LONDON.—Accepted for alterations at "The John Bull" Tavern Bath-street, Poplar. Mr. R. A. Lewcock, architect, 88, Bishopsgate street Within:—

Walker Bros., *Contractors*.....	£378 0 0
Steadman, *Gasfitter*.....	48 0 0
Heath, *Pewterer*	105 0 0

LONDON.—Accepted for works at 20, Green-street, Spitalfields. Mr. R. A. Lewcock, architect, 88, Bishopsgate street Within:—
Simpson £139 0 0

LONDON.—Accepted for alterations at "The Aberfeldy" Tavern, East India Dock-road. Mr. R. A. Lewcock, architect, 88, Bishopsgate-street Within:—
Walker Bros. £326 0 0

LONDON.—For the erection of boiler-house, with chimney-shaft, &c., at Shadwell, for Messrs. Wickens, Pease, & Co., Ltd. Mr. J. Woodard, architect. No quantities supplied:—

Ashby & Horner	£850 0	Charles A. King	£588 0
Puzey & Lumley	769 0	Chafen	413 10
Perry & Co.	596 0	Robinson	370 0

LONDON.—Accepted for alteration to Church House, Porchester-terrace, Bayswater. Mr. W. D. Church, architect, 12, South-place, Finsbury:—
F. T. Chinchen, Kensal Green £220 0 0

NEWCASTLE-ON-TYNE.—For re-building the "Bacchus" Inn, and new warehouses and offices, Newgate-street, Newcastle, for Mr. G. C. Charlton. Mr. Arthur Stockwell, architect, 11, Pilgrim-street, Newcastle-on-Tyne. Quantities by Mr. George Bell, Quantity Surveyor, Collingwood-street, Newcastle-on-Tyne:—

Excavator, Bricklayer, Mason, Joiner, Plasterer, and Iron Founder.

J. Ferguson	£8,200 0 0	N. & R. Reed	£6,721 17 1
Middlemiss Bros.	7,780 0 0	J. Slater & Sons	6,385 15 0
J. Hope	7,290 0 0	G. Maucdlin	6,357 2 4
A. Pringle	7,002 10 0	Anderson & Slater	6,269 5 0
L. Gabey	6,824 0 0	G. Scott & Sons	6,197 0 0
J. & W. Lowry	6,780 0 0	H. Brown & Co.	6,061 14 3

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Emley & Sons	550 0 0	J. Somerset & Co.	475 0 0
C. Patterson	527 0 0	W. Burn	466 16 0
A. Scott	506 5 8	R. Herron	460 9 8
H. Walker & Co.	499 4 0	H. Simpson	450 16 9
E. Johnson & Co.	492 0 0	Bland Bros.	445 0 0
Threlkeld & Wallace	490 8 0	R. J. Charlton	440 0 0
J. France	481 10 0		

Slaters.

J. France	75 16 6	Kirk & Dickinson	70 10 0
Hewittson	71 10 0	C. Nicholson	69 14 0
Beck & Son	70 17 2		

Painter and Glazier.

W. Cuthbertson	308 10 0	R. Richardson	234 0 0
J. Laidler	252 8 9	W. Campbell	226 0 0
A. Robertson	245 12 0	J. Gibson	210 0 0
J. Rowell	240 0 0	W. Copland	207 0 0

REEPHAM (Norfolk).—For new school and master's house, for the Hackford and Whitwell W.D. School Board. Messrs. Bottle & Olley, architects, Great Yarmouth. Quantities by architects:—

W. T. Howard	£2,546 8 0	R. Mayes	£2,239 0 0
S. W. English	2,506 15 0	S. Hipwell	2,150 0 0
J. Needs	2,450 0 0	T. H. Blyth, Foulsham*	2,085 11 6
H. S. Hawes & Son	2,330 5 0	F. J. Hipperson	2,029 16 0
G. E. Hawes	2,275 0 0		
W. Chapman & Son	2,250 0 0		

* Accepted.
Architects' estimate, £2,075.

RUDGWICK (Sussex).—Accepted for the erection and completion of a pair of cottages, for Mr. F. Barker. Mr. W. H. Harrison, architect, 2, New-court, Lincoln's Inn:—
F. T. Chinchen, Kensal Green £960 0 0

WOLVERHAMPTON.—For the erection of a higher-grade school, Wolverhampton. Mr. T. H. Fleeming, architect, 5, Waterloo-road, Wolverhampton:—

Willcock & Co.	£11,701	Horton	£10,850
Harley & Son	11,549	Lovatt, Wolverhampton*	10 789
Guest & Son	11,420	Whitehouse (withdrawn)	9,967

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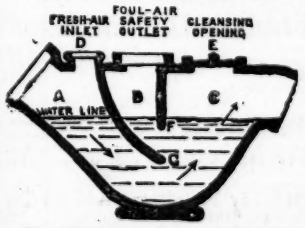

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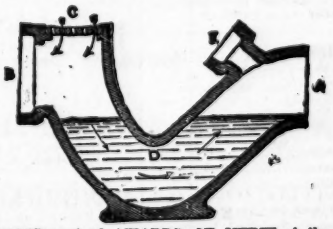

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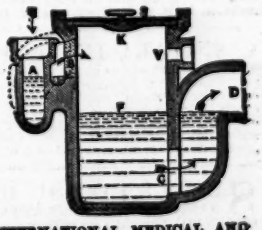

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The applicants must hold a Certificate of the Sanitary Institute, and the person appointed must devote the whole of his time and attention to the duties of the office, and must not undertake any private practice.

The salary will be 175*l.* per annum, with a yearly increase of 20*l.* up to 300*l.* per annum.

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Dated this 1st day of September, 1892.

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Clerk to the Bexhill Local Board.

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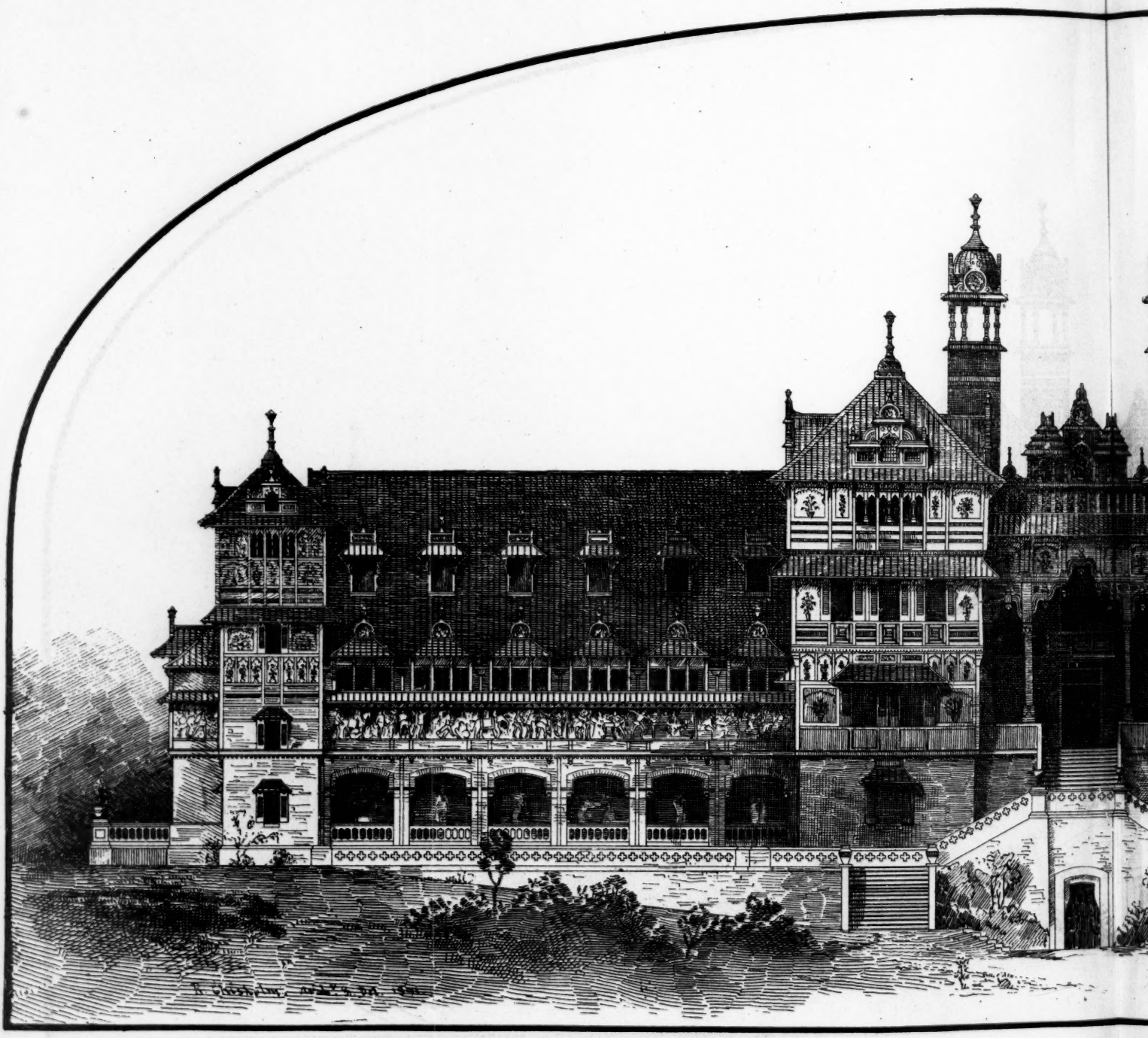

PAVILION OF MUSEUM, BARODA.—MR. R. F

- SCALE - 8 - FEET - TO - AN - INCH -

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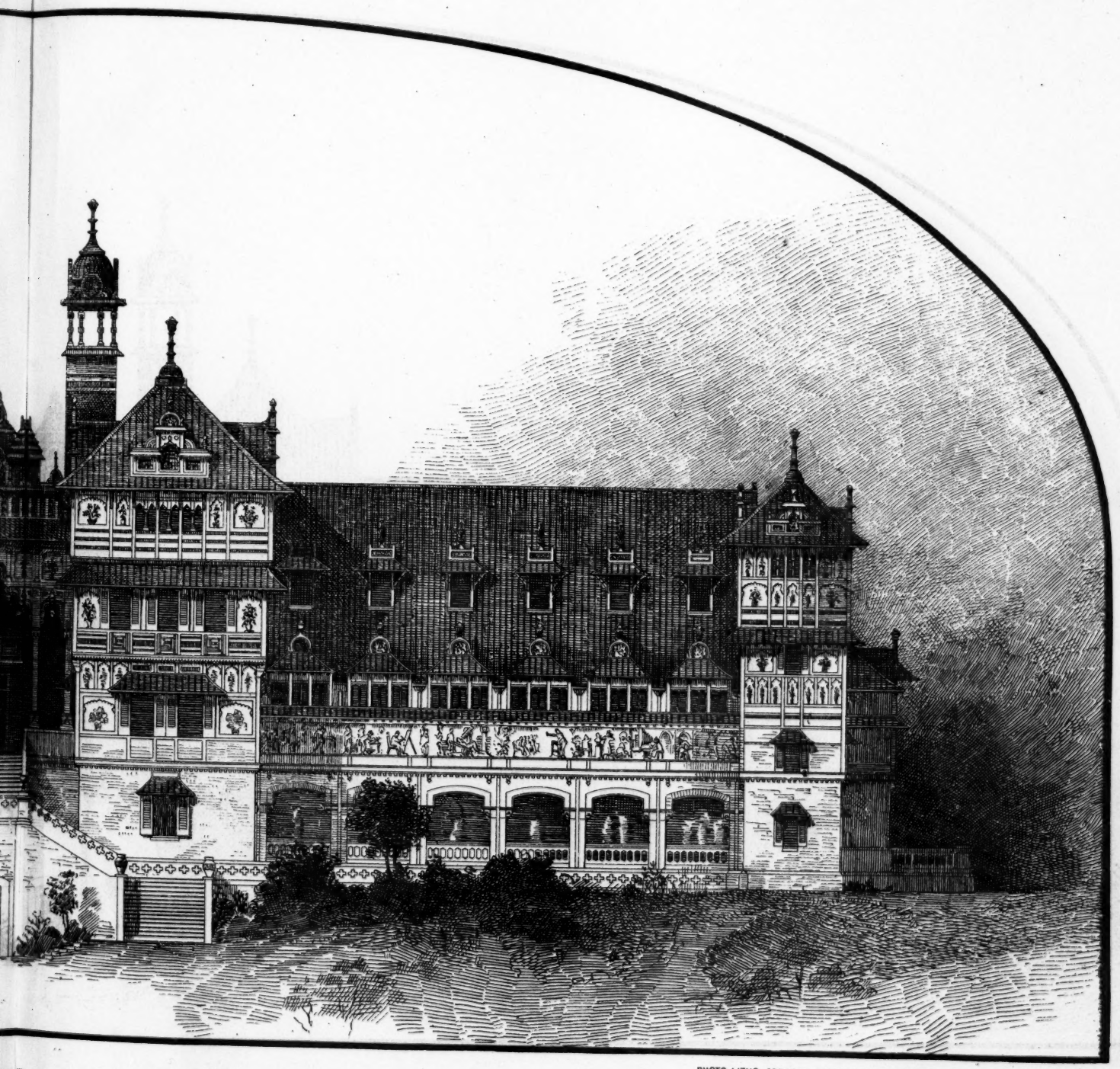

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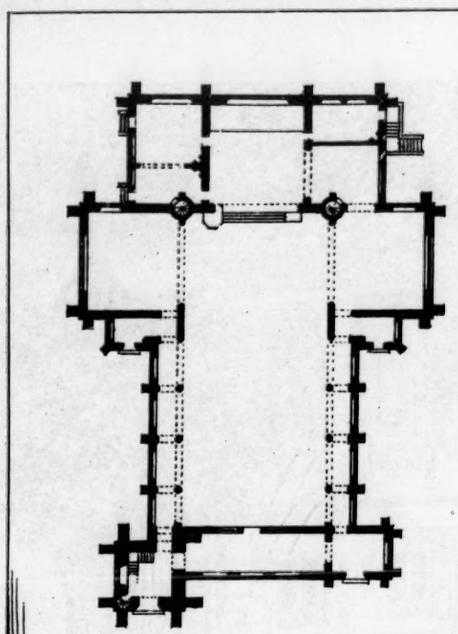

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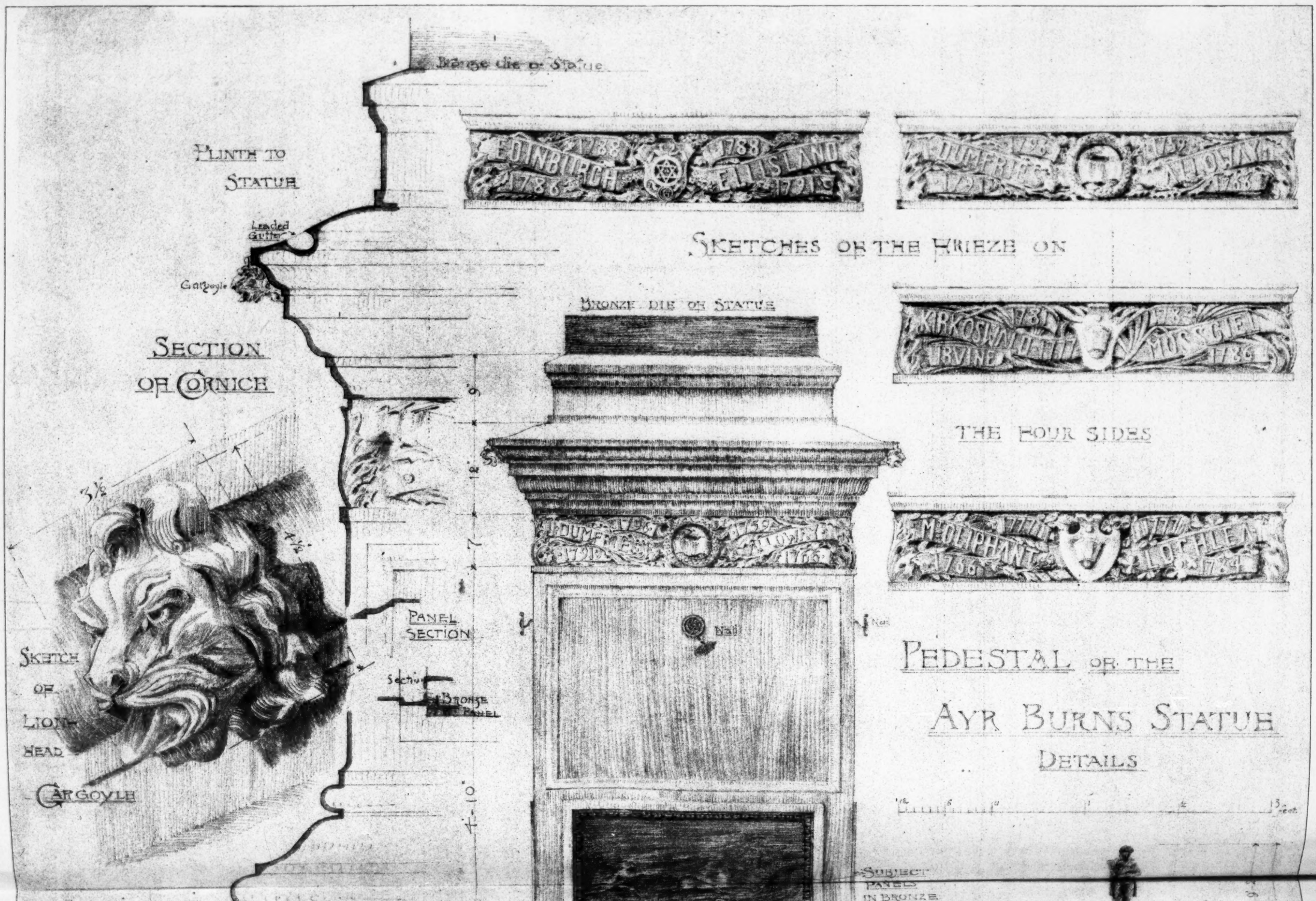
Bronze die of Statue
PLINTH TO STATUE
Leaded Grille
Gargoyle
SECTION OF CORNICE
SKETCHES OF THE FRIEZE ON
BRONZE DIE OF STATUE
THE FOUR SIDES
PANEL SECTION
Section of Bronze Panel
SKETCH OF LION-HEAD GARGOYLE
Nail
PEDESTAL OF THE
AYR BURNS STATUE
DETAILS
SECTION OF
SUBJECT PANELS IN BRONZE.

SECTION OF BASE MOULD

BRONZE SUBJECT PANELS

PLINTH

SUBJECT PANELS IN BRONZE

Subjects in Panels
"Tam o Shanter"
"The Cotters Saturday night"

General sketch

ELEVATION OF PEDESTAL.

SKETCH OF MONOGRAMS ON NAIL-HEADS

SECTION

Face of Panel

RK. del.

6. DELAHAY STREET
WESTMINSTER S.W.

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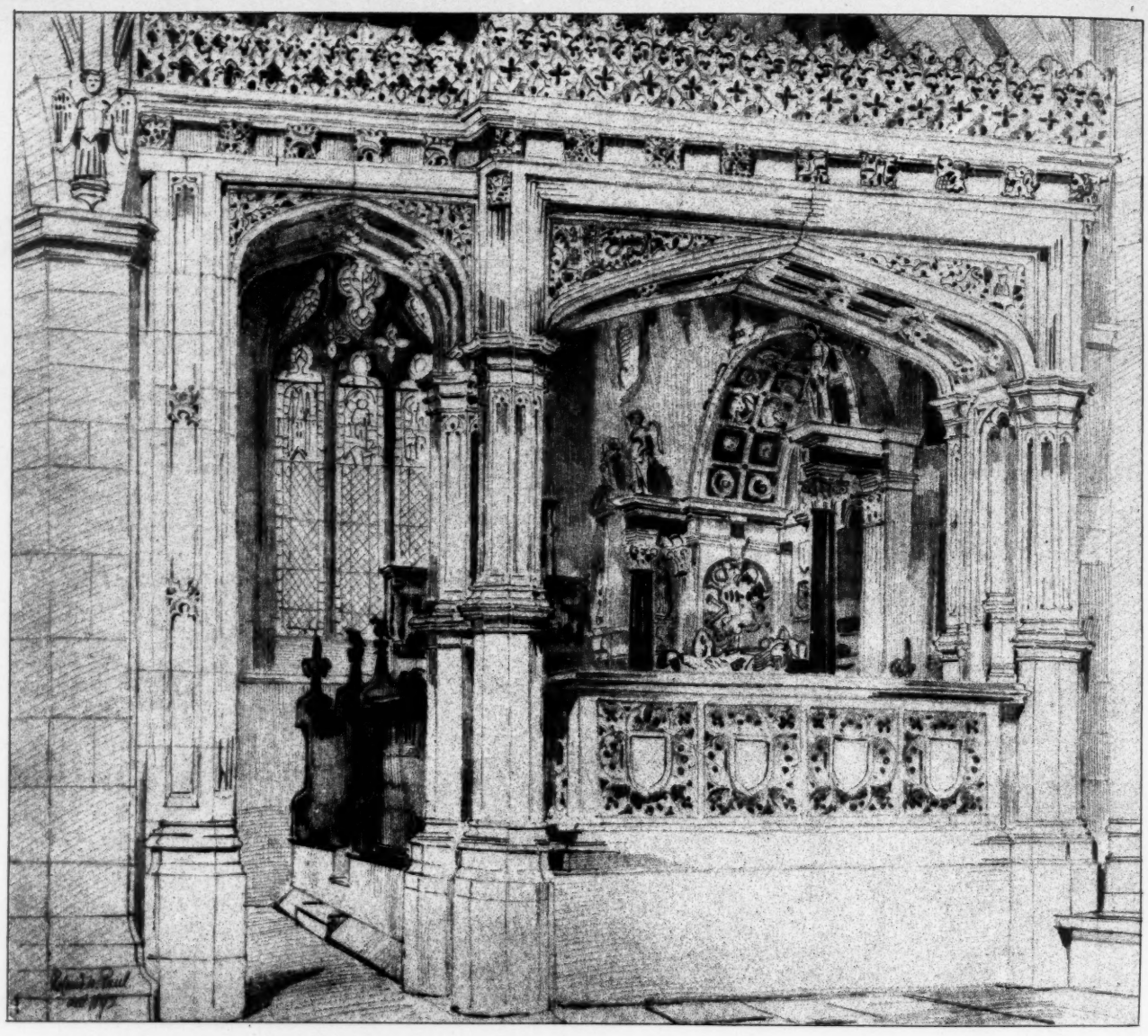
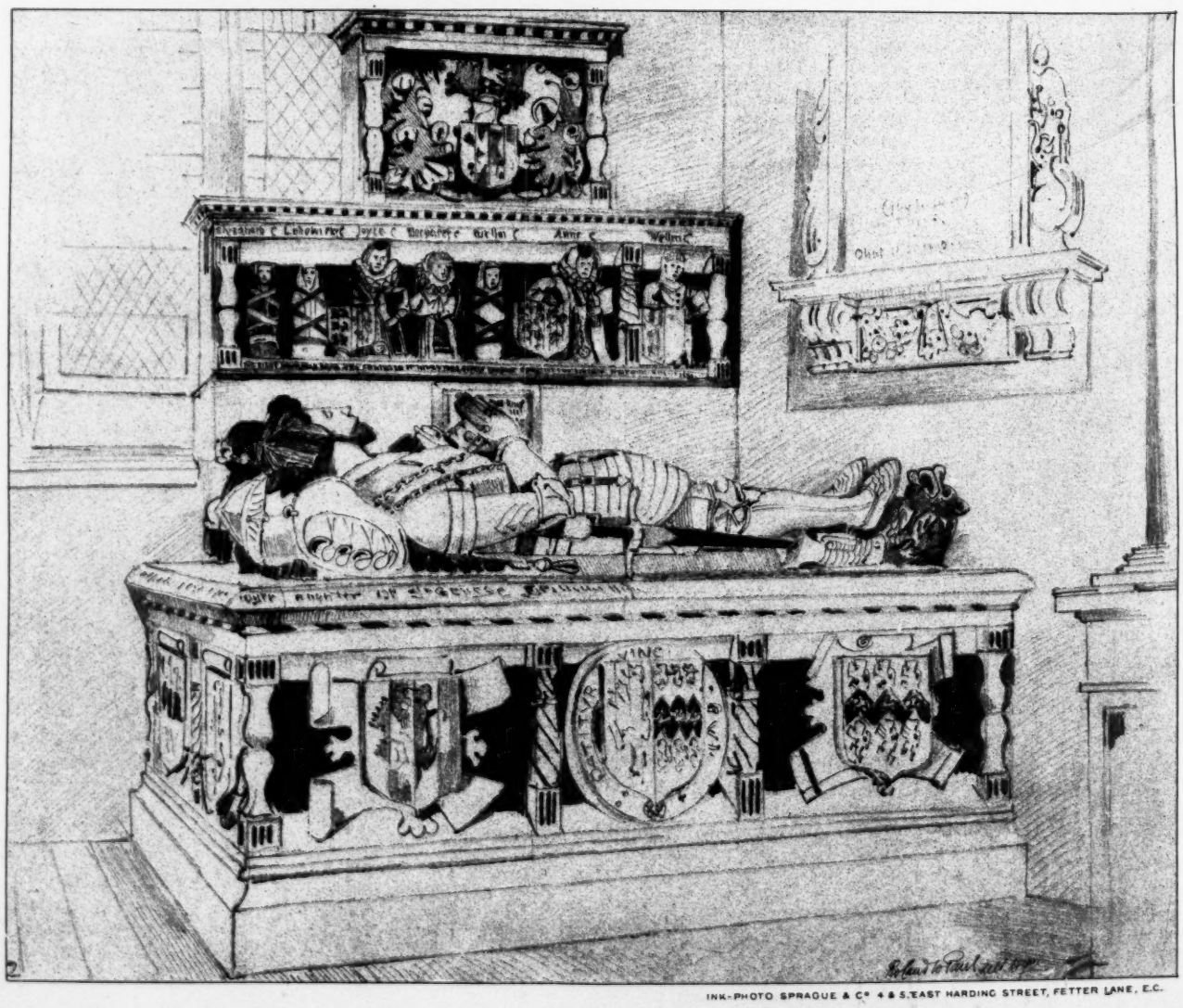
DESIGN AND DETAILS OF PEDESTAL OF THE BURNS STATUE, AYR.—Messrs. Morris & Hunter, Architects.

Royal Academy Exhibition, 1892.





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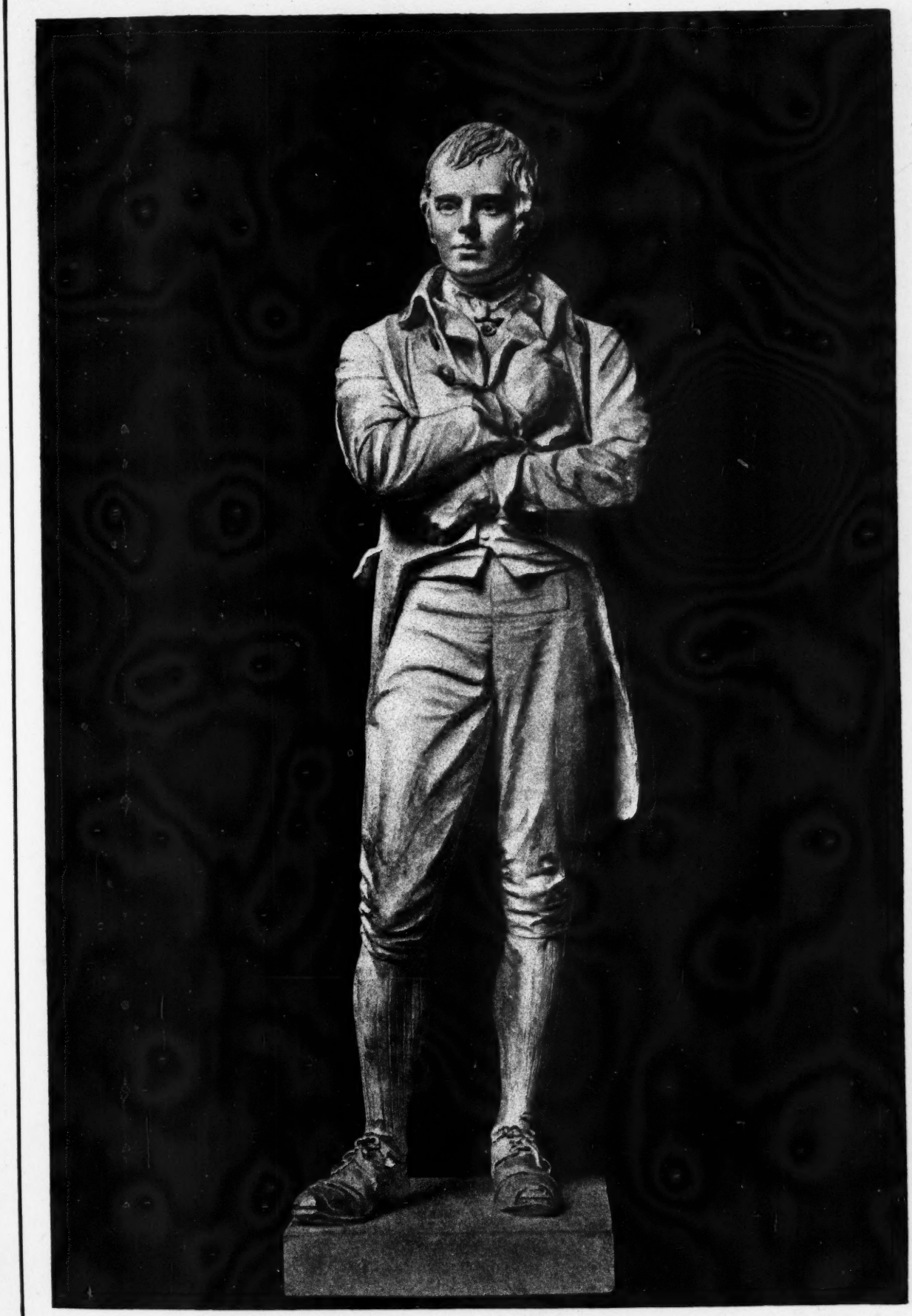
STRATFORD-ON-AVON CHURCH, WARWICKSHIRE: THE CLOPTON CHAPEL.

1. GENERAL VIEW OF CHAPEL FROM THE NAVE.
2. TOMB OF THE EARL AND COUNTESS OF TOTNESS.



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THE BURNS STATUE, AYR.—Mr. G. A. Lawson, Sculptor.